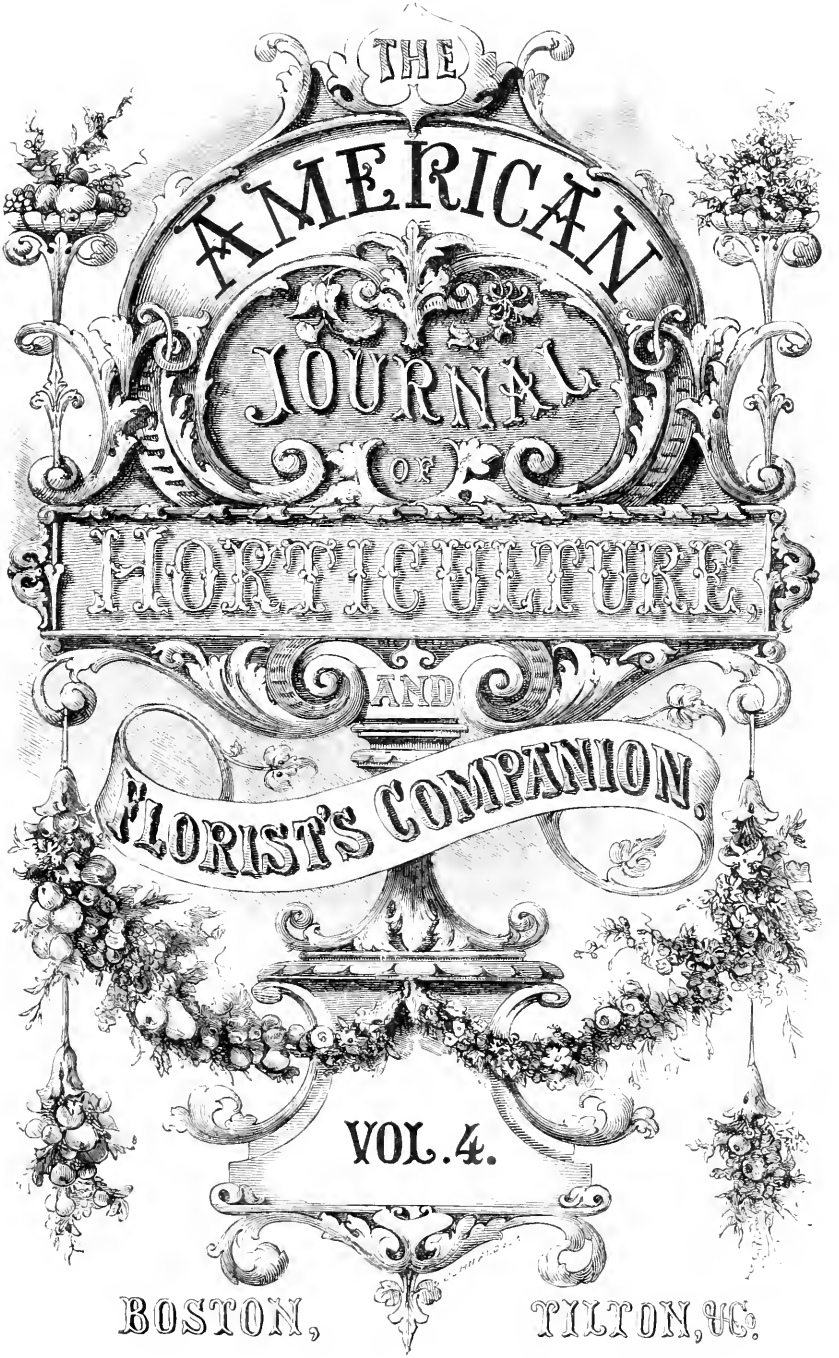
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SHELTER.

Year by year, the forests in our country are being stripped off, exposing the hills and plains more and more to the fierce, sweeping winds of winter. Springs and brooks have disappeared because of this wholesale destruction of the forests; and trees that were formerly hardy, and produced uniformly good crops, now fail altogether. The peach, that formerly gave in the New-England States a crop almost every year, now fails two years out of three: while the tree is often badly injured by the winter. The same may be said of other fruit-trees, as well as of ornamental trees, shrubs, and grape-vines. The winter that has just passed has been a peculiarly unfavorable one. From all quarters, we hear complaints that hedges of arborvitæ, hemlock, and other plants, have been badly injured; that standard evergreens which had stood successfully for years have been nearly destroyed; that grape-vines in large numbers, and even of those varieties that have been considered perfectly hardy, have been killed; that pear-trees in large numbers have either been killed outright, or so injured that they will bear no fruit, and require a year or two to recuperate. This is true of these things in

exposed locations, but not true of them in every position. Now, the hemlock is generally a perfectly hardy tree, and is found growing in the cold, northern regions, on high hills and ledges; but, when transplanted to our private grounds, it often fails. We are frequently asked for an explanation; and to such a question we invariably answer, It needs shelter. In its native forest it receives it. The ground is usually well mulched with the leaves that fall from the trees, and is also protected by them, so that the frost does not penetrate deeply. Then each tree protects the other; as, in a flock of sheep crowded together, no single sheep feels the cold as much as one exposed alone would. Then in the forest, or near it, on its outskirts, the single trees are not so exposed to sweeping rough winds as in those parts of the country where the wood has been cut off, or there never was any to afford a shelter. The wind may blow ever so fiercely over the highest tree-tops; but low down its influence is not much felt. Set out a hemlock-hedge in a bleak, exposed situation, as we have often seen them set, and witness the result. Those of the plants that are not destroyed the first winter will be quite likely to be the next; and the owner condemns the plant or tree as unfit for such a purpose, when, in fact, if it could have received proper shelter from evergreen-boughs, straw, or even boards, until it had got well established, the hedge would perhaps be safe. The same will apply, in a measure, to all evergreens that are liable to injury from severe weather in winter. In regard to grape-vines, some of them may not be perfectly hardy even in the best season, and should always be covered in winter to shelter them from freezing and thawing; but others which are considered hardy perish during an unfavorable winter with the more tender varieties. Pear-trees have been destroyed, root and branch, — bearing trees even; while many others have had the extremities of the branches killed back when considerably exposed to the cold winds. Even ornamental trees of some kinds have been injured from the same cause. What is the remedy? Shelter, we answer. We well remember some years ago, after a season such as we had last year, followed by a hard winter, we had occasion to visit the grounds of a well-known nursery-man near Boston, and found his trees in the very best condition, and full of fruit, while in gardens more exposed the result was very different. Now, this garden was in a city, and, besides, was well sheltered, on the east, north, and west,

by a fence ten or twelve feet high. On the north, beside the fence there was a long building; and, just in front of that, the pears-trees seemed to do the best. The fruit was abundant, large, and fair. Now, we have always believed that this favorable condition of things was the result of shelter. Every one knows how much grape-vines are benefited by the protection they receive in cities: even the Black Hamburg will ripen in the open air in Boston, and the Rebecca as far east as Bangor, if they only enjoy the protection that city walls afford them. The White Doyenné or St. Michael Pear, which cannot be grown in the open orchard in certain parts of the country, will nevertheless, when grown among the buildings in the city, produce fair and perfect fruit. We have known the Van Mons, Leon le Clerc, and other pears that crack, operate in the same way. Now, what is it but shelter or protection that makes the difference? The benefits of shelter have been fully demonstrated in our own vineyard the past winter. On a side-hill facing south, and well protected on the north and east by a hill covered with trees both evergreen and deciduous, the vines were entirely uninjured by the winter, and started earlier and more vigorously than any others on our place. There was no apparent reason, except that they were sheltered from the rigors of winter. This fact was patent to all who saw the vines. On the other side of the same hill, where exposed to the full sweep of the winds for a long distance, almost every grape-vine was killed to the ground; and some large pear-trees shared the same fate, while others were badly and perhaps permanently injured. What made the difference but want of shelter? Both had received the same treatment during the previous summer, and the soil on each side of the hill is very similar.

The rhododendron is a plant that will illustrate the advantages of protection. When found growing in the forest, under the shade of the pine and other evergreen trees, it rarely fails to bloom in great profusion; but remove it to an open and exposed location, and it will soon be utterly destroyed by the winter. It does not seem to be so much the extreme cold as the changes and the severe winds that do the injury to which we have referred. Every man who has been exposed to biting winds in winter on the bleak hills of New England, or the treeless, shelterless prairies of the West, can testify to the satisfaction with which he has crept up to the leeward side of some building, or followed possibly in the rear of a load

of wood or hay that he might be carting. If, then, so great a change is caused by the wind, is it strange that it should do great harm to trees and plants, in some cases, by its severity?

Not only is shelter from the winds of winter indispensable to the highest success in growing certain kinds of fruit, but shelter in spring and summer is also highly desirable. Recently, when the young leaves were just developing their beauty, there came a gale from the south, and continued to blow for several hours in succession, tearing and blackening the foliage somewhat to the injury of the tree. Again: in autumn, the trees are often torn and twisted and the fruit scattered about by the wind because the orchard is exposed to its full sweep. It cannot, of course, be said that all the evil effects of the wind and cold are *wholly* owing to the destruction of the forests. It is fair to admit, that years ago, before the country was so open, there were occasionally winters when trees were injured; but it cannot be denied that great changes have taken place.

We knew a peach-orchard as far north as New Hampshire that produced fine crops of excellent fruit for many years; while farther south, in exposed locations, the buds were often killed, and the trees sometimes destroyed. The only reason that can possibly be assigned for this difference is the shelter that the orchard had in New Hampshire, it being surrounded on three sides by forest-crowned hills. Now, if it is true that trees, plants, and vines are so much benefited by shelter, — as we think all who have had experience must admit, — then the question will be asked, What is the remedy? How shall we protect our vineyards, pear, peach, and other orchards, to say nothing of hedges, shrubs, and numerous other things, in and about a place? It may not be possible to restore the former state of things; but it is perfectly certain that we can do much towards it. In selecting a place for a vineyard in the Northern and Western States where the winters are severe, or the winds strong, choose a place, if possible, on the south-east, south, or possibly the south-west side of a hill, — all the better if its top be covered with trees; or if West, where hills are not so plenty as in New England, choose the leeward side of a belt of timber. Many excellent spots may be found where no artificial protection would be needed: the southern slope is already formed, the trees already grown. When this cannot be found naturally, then the deficiency, so far as possible, must be sup-

plied by the planting of deciduous and evergreen trees, especially the latter. While deciduous trees answer a good purpose for protection from winds in summer, and assist in doing the same in winter, still evergreens are much better to furnish shelter during the cold weather. If high fences or buildings afford so great a shelter as we have claimed, why will not a high hedge of Norway spruce, or some tree equally well adapted to the purpose, give just the shelter required by the gardens and orchards? Or, if a single hedge or row is not enough, then plant a belt of trees. How often do we see at the North evergreen-trees (pines and spruce) planted to break off the cold winds from a dwelling-house! — the owner thus fully recognizing the principle we have laid down. We remember visiting a fine farm in the State of Maine some few years ago, where we found a pear-orchard in pretty good condition, where it was completely surrounded by a belt of spruce-trees; while we were told by the owner that all the trees planted on the outside, and away from these trees, had utterly failed. The tree used here was the Norway spruce.

Young evergreen-hedges, especially the hemlock, in exposed locations, should receive, for two or three years, some protection; and this can be accomplished by sticking down evergreen boughs each side of the hedge from November to April. When trees are planted in belts or hedge-rows to protect fields or gardens, evergreens will be found preferable. Those best adapted to the work are the white pine, Norway spruce, Scotch pine, Norway pine, American arborvitæ, American spruce. The Scotch larch, though not an evergreen, is a rapid grower, and will soon make a tree of considerable height. The red cedar is also pretty good to mix in with the above-named sorts, though it is not a rapid grower. The hemlock, which is liable to injury when exposed, will do pretty well when planted in belts with other evergreen-trees. The white pine will bear the pruning hook and shears well, and the trees which have attained height may be headed in. The Norway spruce can be treated in the same way, and can be profitably employed for hedges of ordinary size. Most of the trees are exceedingly hardy, and can be used in the most exposed places with perfect safety. One objection is raised against thus planting trees about fields, that no crops can be raised in the shade of such timber; and, even on the exposed or sunny side, the roots extend into the ground, and exhaust the

soil, so that ordinary field-crops would suffer. We cannot deny that this would be true to some extent, but not so far as may appear at first glance; but, as the good far outweighs the evil, it should still be done. There are other advantages besides shelter to gardens, and protection to buildings. Every man so planting will add very much to the value of his place by the additional beauty it receives from such groves and belts of trees. He is also raising wood or timber that will some time be of great value when wood and timber become scarce and dear. Horticultural and agricultural societies should offer liberal premiums to those who set out or raise from seed such groves or belts of trees, whether deciduous or evergreen. Every sensible man in the country mourns over the sad havoc that has been made by thoughtless men of past generations who have so ruthlessly destroyed the forests. Millions of acres of the finest pine and other timber of the primeval growth have been cut down and burned on the ground, and the land left to run up to mullein-stalks or brush. Let every thinking, careful man see what he can do to restore these forests, or at least to furnish proper shelter to his own grounds, and, indirectly, the grounds of his neighbors. Plant liberally, and take good care of the trees until they get well established, and they will soon gladden the eye of the owner, and accomplish the object for which they are designed.

TREES IN STREETS.

One evil arising from planting trees in the street is, that they are allowed to grow so low, that they obstruct not only the highway, but the sidewalk. How often we hear the complaint, that the elms or maples on a certain street are so low as to interfere with the hats and umbrellas on the sidewalk, and very materially with carriage-tops, loads of hay, lumber, and many other things on the roadway! Now, trees planted on streets are not only objects of beauty, but are useful; and we would do all in our power to encourage the planting of such: but we must bear in mind that they will need to be looked after to see that they do not annoy the passers-by, and become objectionable on that account. Let each one look after the trees opposite his own grounds, and the work is done.

THE TROPÆOLUM.

WITHIN the last few years, a new impulse has been given to the cultivation of this favorite flower by the production of varieties of a dwarf free-blooming habit, which serve an admirable purpose in the garden as bedding-plants.

The tropæolum seems naturally to divide into several classes. First we have the greenhouse species, with tuberous roots, of which *T. azureum* and *tricolorum* are examples.

Next we find those with large round leaves and showy flowers, often coarse growers, but very ornamental, mostly varieties of *T. majus;* again, those with small, rounded leaves, and delicate, symmetrical flowers, the habit of the plant being rather climbing than trailing; and, lastly, a class of bushy, erect habit, with regular flowers, and generally profuse bloomers.

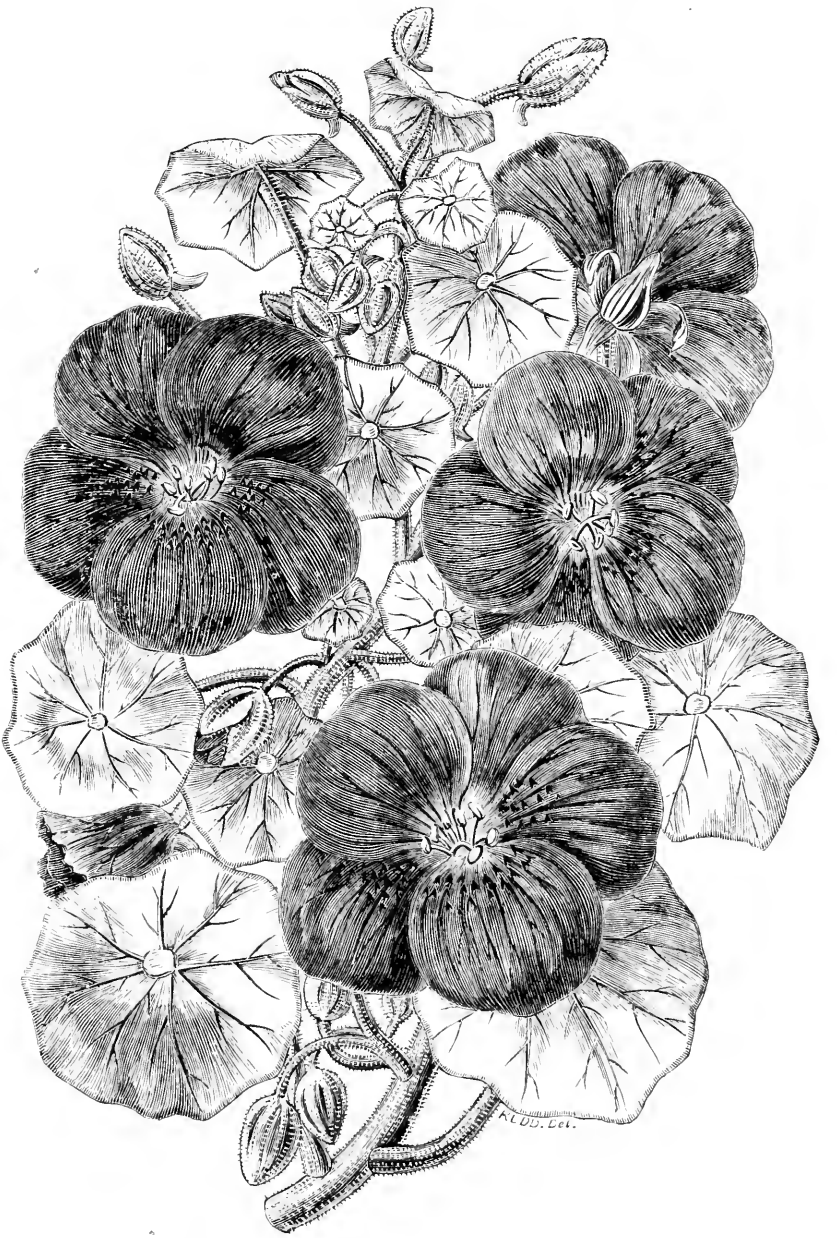
These classes, except the first, often run into each other; and, in individual plants, there is often difficulty in telling where they belong: nor have the numerous seedling varieties of the last few years tended to remove the difficulty; for they are so confused by hybridization, that it is almost impossible to determine their true position.

The general culture of the tropæolum is very simple. The tuberous species, which are greenhouse-plants and winter-bloomers, need a compost of leaf-mould, peat, and silver sand. They should be potted in the autumn in well-drained pots (the top of the tuber being above the soil), be watered, and placed in a gentle heat. The crown will soon send out a stem, often as fine as a hair, which, as it grows, must be carefully trained to a trellis. In a few weeks, flowers will appear, and the plant will soon be a mass of bloom. The blossoms do not resemble in the least the garden species, but are delicate, curious, and beautiful.

Those of *T. azureum* are of a beautiful blue, look like double violets, and are delightfully fragrant. The discovery of this species in 1844 overturned a pet botanical theory. It had, with some show of reason, been asserted that no genus where the general color was yellow or red could have a blue flower; but *tropæolum* is a striking exception to the rule.

Other tuberous species are *T. tricolorum* and *Jarrattii*, with brilliant red,

yellow, and black flowers; *T. brachyceras*, with bright yellow blossoms,



the base of the exterior petals delicately pencilled with reddish purple;

T. polyphyllum, bright orange ; *T. tuberosum*, orange-red ; *T. edule*, bright orange.

The plant formerly known as *T. pentaphyllum*, the fruit of which is a juicy berry, is now known as *Crymocarpus pentaphyllus*.

The general treatment of all the tuberous varieties is plenty of air, light, and water, with free syringings to keep down red spider when in growth, and the withholding of water when the plants are at rest. They are increased by cuttings, which root in pure sand ; also by seed, which vegetates freely if the hard outer shell is carefully removed.

The large-growing tropæolums, or, as they are commonly called, nasturtiums, are varieties of *T. majus*. They are very showy ; and as they are very democratic in their habits, succeeding anywhere, they are very commonly planted. The colors are various, and the species occurs under a variety of names. The flowers are found of every shade of yellow, orange, and red, and of all combinations of these colors, in spots, blotches, shading, or bands, upon both light and dark grounds. As is the case with all the garden tropæolums, the plants succeed best in a poor soil ; for, in a rich loam, they run all to foliage, and give but little bloom. These varieties are well adapted for covering unsightly objects, as they produce a profusion of bright foliage and showy flowers. Seed is freely produced, from which the plants are commonly raised. Any fine variety may, however, be increased by cuttings, which root freely.

These varieties are rather trailers than climbers, though they may be trained to cover a trellis.

We next come to perhaps the most useful class,— *T. minus* and its numerous varieties. These may be readily distinguished from the varieties of *T. majus* by the leaves : in the former, the nerves of the leaves always end in a point, which is never the case with those of the latter. These varieties are very popular greenhouse-plants, free-flowering, of rapid growth, and of easy culture. They are climbers, and admirably adapted for the rafters or back wall of a greenhouse, where, if in a warm, sunny exposure, they give sheets of showy bloom.

T. Lobbianum, with small bright orange-scarlet flowers, was one of the first of this class to attract notice ; but it is now neglected for newer varieties, which are seldom as good. *T. pulcherrimum* is a bright yellow, and

T. Smithii a good red kind. These were all introduced from Columbia; and from them have sprung hosts of hybrids, many very showy and desirable. *T. bicolorum* is a variety not yet introduced, of which the upper petals are bright yellow, and the lower brilliant scarlet.

Many of these varieties make admirable bedding-plants, covering the ground with a mass of dark green, often glaucous foliage, and, towards autumn, giving a profusion of gorgeous bloom. They are also well adapted for covering trellises or sunny walls, as they grow so vigorously, that a small plant set out in May will often cover many square feet by August. These varieties do not ripen seed as freely as the various kinds of *T. majus*, and are therefore best propagated by cuttings, which root readily in sand. As parlor-plants, many of the varieties of *T. minus* are most desirable. They should have rather a large pot, moderately rich soil, and good drainage. Placed in a sunny window, and trained on a trellis, or by strings across the window, they will never be out of bloom, and, towards spring, will give a profusion of flowers.

In the greenhouse these varieties are subject to red spider, which, however, may easily be kept down by free use of the syringe.

We had almost forgotten to mention one of the most charming of the family. *T. peregrinum*, or *aduncum*, commonly known as canary-bird flower, is a beautiful summer climber. The flowers are bright canary-yellow, and are very freely produced. Seeds sown in pots in April will produce plants, which, turned into the garden in May, will give abundant bloom. The plant is a tall climber, and likes a warm, rich soil. Seed is freely produced.

We lastly mention the upright bedding varieties, of which there are many in cultivation. They form miniature bushes, profusely studded with showy yellow or red blossoms; and are most desirable bedding-plants, as they form striking masses of color. They are generally grown from seed.

The double tropæolums sometimes seen in greenhouses are ugly monstrosities not worth growing.

Our illustration gives a very good idea of the perfection which has already been attained with hybrid varieties. The symmetry of form, and breadth of petal, are worthy of a florist's flower; to which dignity the tropæolum may soon attain, if the future may be judged by the progress in the past.

E. S. R., Jun.

Glen Ridge, June, 1868.

APPLES.

THE late civil war has changed the *status* of commerce, both foreign and domestic. It has necessarily enhanced the cost of production ; owing, no doubt, to the expansion of the currency, but mostly, however, to the withdrawing of producers from the mass of the people, and making them consumers, — consumers to the amount of four thousand millions, added to the amount that might have been produced by those combatants, say one thousand millions ; making the loss to the country, in productive capacity, five thousand millions.

It will take the surplus of many years' labor to recover the loss and pay the debt.

Before many years, no doubt, the taxes for the liquidation of the debt will be modelled somewhat like the English system of internal tax, — mostly levied upon spirituous liquors, tobacco, and incomes.

Every nation, whether civilized or half-civilized, possesses a national beverage : each is prepared from some indigenous production of their realm.

Cider was the daily beverage of this nation in the early part of this century, for the citizen as well as the farmer. In those days, it cost the consumers from three to four cents per gallon.

After the close of the last war with Great Britain, and the liquidation of the debt caused by that war, the distillation of Indian corn commenced. It soon worked a revolution. The people stopped drinking cider, and took to drinking whiskey : intemperance soon stalked abroad in the land, misery followed in its wake, commerce waned, industry stood idle.

The farmer laid the axe to the root of his apple-trees. Some of the most thrifty ones were grafted to good table-fruit, but with many misgivings; for all prophesied no sale for eating-apples.

The Temperance reformation soon worked a revolution. Cider was no longer much used ; but good table-fruit was in demand. Pomologists multiplied. Books soon came to the aid of the fruit-grower. The mania soon spread over the land. Orchards were planted everywhere, some in suitable, and some in unsuitable soils.

Those orchards are, at this time, commencing to produce fruit. Those that have been carefully cared for must eventually become good property for many years to come.

Apples in their natural state, dried apples, and cider, will enter more largely into commerce than ever before, because the supply makes a demand ; and demand, or use, soon makes a necessity.

Vinegar from cider, owing to the low price at which it can be made, will soon supersede whiskey-vinegar, owing to the relative high price of whiskey compared with cider.

Malic acid from the apple may soon enter commerce, and in many uses take the place of cream of tartar ; its preparation being the work of the chemist.

Can any contingency arise to preclude the possibility of making heavy crops of apples unremunerative, considering the various uses to which the crops can be applied ?

Apples which I term summer varieties are those that ripen on the trees, and are injured if picked from the trees by what is termed hand-picking ; that is to say, gathered by hand, as we gather long-keeping winter-fruits.

If they are picked before they are ripe, they shrivel, and are often deficient in flavor : such are of imperfect growth.

Early-maturing apples should hang on the trees until a slight jar will loosen the stem from the limb.

The last few days develop most of the desired qualities sought for in summer apples, — softness of cells, or mellowness ; secretion of that subtle something called flavor, or perfume, that is scarcely fully developed unless perfectly ripe before taken from the tree.

The color of the skin, — which, if beautiful to the eye, often covers many imperfections, — the fine downy bloom on the skin, are matured only at the time of the fruit's fullest development.

All vegetation, after the season of activity is past, remains dormant. After the proper season of rest has transpired, it is very susceptible of change of temperature.

The spring months are the most critical for the production of the trees. If sudden extremes of temperature take place, harm may be done ; but, if

the changes are gradual, no harm need be anticipated, providing the preceding month of September was favorable for the ripening of the buds.

Early apples, or summer ones, are more prolific, and more constant bearers, than late or winter apples, caused, no doubt, by the trees having shed their load of fruit in the early part of the season of growth; their whole work during two of the best months of the year being devoted to preparing fruit-buds for the next year's crop.

Heat is the principal working agent in producing fruit, as well as wood. We can approximate very nearly the amount of heat required to produce any given variety of apple.

Nearly all apples blossom at or about the same time of the month in corresponding latitudes.

In the latitude of Boston, the average season is near the 25th of May for the full blossom of the apple, with a mean temperature of 54.1° Fahrenheit.

The Early Harvest blossoms full on the 25th of May, having five days to grow in the month of May. Five days multiplied by 54.1° is equal to 270.5° of heat. The mean heat of June is 62.8° × 30 days = 1,884°. Twenty-five days in July to its ripening, with a mean heat of 69.1° = 1,726.5°.

By this estimate, we find that it requires about 270.5° + 1,884° + 1,726.5° = 3,884° of heat to ripen the Early Harvest.

The Red Astrachan and the Sweet Bough, ripening about twelve days later, require those twelve additional days of heat more than the above variety. 69.1° of mean heat by twelve days = 829.2° + 3,884° = 4,713.2° aggregate amount of heat required to ripen the Red Astrachan or Sweet Bough.

The Porter ripens about the 15th of September; requires in May 270.5°, in June 1,884°, in July 2,170°, in August 2,048°, fifteen days in September 93.9° = 7,313° of heat to ripen after its time of blossoming.

Here we see that the trees of the earlier varieties of apples produce more fruit in a given number of years than those that require the whole heat of the growing season to ripen their fruit. Those that require the whole energy of the tree to carry forward a heavy crop seldom can have perfect fruit-buds for a heavy crop until a season of rest. They become alternate bearers; producing heavy crops one year, barren the next year.

In this paper I will give some of the characteristics of the summer apples, — those possessing such a character as to be considered standard varieties in our markets.

Early Harvest. — A variety universally recommended, and very generally planted, even in the smallest collection.

It has disappointed the planters, except when planted in soils well supplied with lime and potash ; otherwise it is never fair. The fruit cracks and blasts. The bark grows rough, and cankers. Shoots erect, short-jointed, slow growth, always at an acute angle, easily split at the joints ; fruit above the medium size, form round, sometimes a little flattened ; color bright straw, with some white dots ; stem stout, six to seven tenths inches, set in a hollow calyx, closed, set in a shallow basin ; flesh white, juicy, sprightly, sub-acid. A poor bearer ; very likely to rot on the trees before it is ripe ; and is an especial favorite of the curculio, owing perhaps to its smooth skin. It ripens the last of July, when we have our markets filled with better Southern-grown fruit. As a market fruit, it is nearly abandoned near Boston. Among cultivators it has eight synonymes, which indicate an extensive culture.

Williams's Favorite. — Originated in Roxbury, Mass., on a strong soil ; and, wherever cultivated on a strong soil, it never disappoints the planter, in quality, quantity, or market-price in the Boston markets.

The past season, it sold in the fruit-stores at a dollar per dozen, and ten cents each. The market was poorly supplied. In years past, it has sold at twenty-five cents per dozen in a very full market.

This fruit grown to its first quality will always sell well in comparison with other apples, on account of its splendid appearance.

Fruit oblong, ovate, bright red, shaded with pale yellow in the shade, rich dark red in the sun ; stem slender, seven-tenths of an inch in length, very slightly sunk ; flesh yellowish-white, and of a fine, mild, and excellent flavor. It ripens slowly on the tree through the month of August, and should be picked as it ripens. A little observation will soon teach the harvesters ; so that they can tell at a glance which fruit is fit to pick. It is somewhat like the strawberry : it must not be picked before it is ripe, if its best developments are desired. Perfection in ripeness makes the market-value : hence the care needed in harvesting.

Some fruit-growers place soft hay under their trees for the fruit to fall on: such is a very good method to adopt, if they will pick up the fallen fruit often, so that they will not fall on each other, and bruise; for the one on the hay will bruise just as much as the falling one that hits it.

The tree makes wood slowly after it commences bearing fruit, is a constant bearer, has but few leaves, and is often quite deficient in the roots: therefore it must have good feed. High manuring is indispensable; as barrenness follows, if neglected.

As a table-fruit, it stands alone in the market, in its season; and with the Red Astrachan for a cooking-apple, both ripening at the same time, they may be alone the two most popular varieties, of their season, of sub-acid fruit.

Red Astrachan. — Origin supposed to be in the realm of the Russian czar. Fruit large, flattish-round, bright crimson in the sun, dark yellow in the shade, and covered with a pale-white bloom; stalk four-tenths of an inch long, set in a deep cavity; tree vigorous, very hardy, a prodigious bearer; adapts itself to any soil or climate, but a good rich soil will make larger and better fruit: sometimes it overbears, and the fruit rots on the tree. The fruit must be ripened on the tree, or else it will soon rot. If picked before the bloom is fully matured, it will decay before it mellows; and, even before its decay, the flavor will be deficient. Its ripeness may be ascertained correctly by the finished ripeness of the bloom.

In harvesting, the fruit should be selected by hand, or the limbs may be jarred, that the ripe fruit may fall on soft hay placed under the trees. The fruit for cooking is unsurpassed: its spicy flavor does not dissipate in cooking. The addition of tropical spices only deteriorates its real richness. It needs only to be tried without foreign spices to be appreciated.

Sweet Bough. — Highly valued as a table-fruit. In the market, possesses a high reputation. I have seen many other varieties sold in our markets for Sweet Boughs. In New York, when Sweet Boughs commanded ten shillings per basket of three pecks, other kinds were often sold for four shillings per basket, and called Sweet Boughs; the purchaser thinking he had got the genuine article.

Fruit large; form conical; color straw when fully ripe; flesh white, very tender and crisp, possessing a sweet, sprightly flavor; tree moderately vig-

orous, young shoots, short-jointed, grayish-yellow, readily distinguished from other varieties. The trees, while young, bear mostly on the terminal bud of the last year's growth. The fruit-spurs are several years in coming to perfection. After the fruit-spurs bear, the terminal bud ceases to bear, and the trees bear annually good crops. A rich, dry soil is best adapted to the wants of the tree and fruit. In wet soils, the tree soon sickens and dies; bearing the marks of old age while yet very small and young.

Golden Sweet. — A large, round, pale-yellow apple; flesh tender; very sweet, rich flavor. A good, thrifty grower; hardy wood, not apt to be attacked by insects: even the trunks of the trees seldom have moss upon them, owing to the smoothness of the bark. Very productive: fruit always fair, and will keep about thirty days after it is gathered. Worthy of extensive cultivation.

The *White and Red Juneatings* may do for the amateur: they are almost worthless for market.

The *Red and Striped Shropshirevine* are considered almost worthless for any use: the trees are diseased, the fruit small, and rots quickly.

Foundling. — Said to be a good bearer, and very handsome, possessing a very sprightly, aromatic flavor.

Summer Queen. — Said to be a very popular midsummer apple. They have always failed in this vicinity, so far as my observation extends.

In planting and growing summer-fruit, the grower well understands that the time of their perfection is short, — at the most, of any variety, about fifteen days; and that the markets are well supplied with small fruits, berries, pears, peaches, and foreign fruits, at the same time the summer-apples come in. To succeed, and secure the market, they must be of the best quality; for they do not stand alone, but are rivals for a market with the best fruits of the goddess Pomona.

Every owner of land should plant some for his own consumption; and his surplus, if good, will sell at a high price. Late keepers are to be relied upon for the main crop, — varieties that may be moved to market as they may be wanted, at any time from October to June, a period of eight months, causing a large consumption in the markets, and a large part of that period of time with little or no competition with fruits of other kinds in their natural or green state.

CYPRIPEDIA.

IT seems to require another article to complete the record of my experience with this interesting family of plants: and I cheerfully assume the task; for the prosecution of knowledge in this direction has been a labor of love, and has yielded a satisfaction which few other pursuits can give.

Of the native species of the *Cypripedium*, I have some fresh items of experience.

A correspondent writes from Elgin, Ill., as follows: —

"In your 'Cypripedia,' an article I have read with much pleasant interest, you mention *C. parviflorum*, in one instance, as having 'all parts of the flower single, except the lip, which was double.' This peculiarity I noticed this season in my garden in two instances, — one, *C. pubescens;* the other, *C. spectabile:* in each case, the double lip very much flattened laterally. I had *C. spectabile* two and a half feet high, with leaves twenty-one inches long."

In a letter from Mr. Rand, dated June 1, 1867, I find the following reference to *C. acaule*, which has defied all my efforts at domestication: —

"Plants of *C. acaule* (transplanted) are now coming up for the fourth year, stronger and better than last year; and are increasing by seedlings. This afternoon, I took a stroll in the woods, and finding a few *C. acaule* with very dark, and one with an almost white flower, I took up the roots, and have little doubt of success in making them grow. Perhaps I have a *C. acaule* soil. I live in a pine-wood, where the plant grows freely. I have two vases full of *C. acaule* (say fifty flowers) of all shades on my table as I write."

A gentleman from Iowa tells me he finds in that State, and in Illinois, *C. spectabile* on the hillsides, where ordinary botanists would as soon think of finding *Sagittaria variabilis;* and he also stated that he found two magnificent specimens of *C. spectabile* on the summit of a high, dry clay-ridge, six hundred and fifty feet above the Mississippi River, in full bloom early in June.

In my garden, this season, I found several flowers of *C. spectabile* entirely

white, one stem of *C. parviflorum* with two flowers, and one stem of *C. candidum* with two flowers.

I have considered *C. pubescens* and *C. parviflorum* two distinct species, and still insist there is as marked a difference as between many other separated species of other plants ; yet many of the best botanists regard them as but one and the same species. Prof. Gray, the highest authority, I learn now puts them together as one species ; but Rev. John A. Paine, jun., one of the most thorough and scientific botanists in the State of New York, and whose study of the *Cypripedium* family has been extensive and profound, still adheres to the theory of separation, and maintains their distinctive features as two species. *C. pubescens* is sometimes earlier, and *C. parviflorum* at times much taller ; and variations from the stated types, especially with *C. pubescens*, are very common : but, in general experience, I think the radical specific differences are sufficiently marked to distinguish them without difficulty.

I have now in my garden a large number of plants of *C. candidum*, which continue to flourish and do well. It seems to thrive under cultivation the best of any of the species. The flowers vary very little in size or shape. A friend, who sent me a package of plants of this charming species last spring, writes as follows in regard to them :—

"The station at which I procured the plants is an extensive swamp in the north-east corner of Genesee County, N.Y. A few plants are found scattered about all over the open marsh ; but they grow more plentifully in the grassy openings, glades, in the low (mostly arborvitæ) woods, at the very border of the swamp, in company with *Parnassia Caroliniana*, *Sarracenia purpurea*, *Valeriana sylvatica*. In the particular locality from which I took those sent you, they grew in a thin layer of mould over marl, though I did not observe that the roots penetrated the marl. *C. candidum* grows more in the sunshine than any of the species, but where it is always wet except in the dryest weather of the summer."

In relation to exotic *Cypripeds*, Hugh Low & Co. wrote recently,—

"There is nothing new in *Cypripedia*, except a very distinct variety of *C. Stonei*, with extremely broad leaves, which has been flowered by Mr. Day on a plant we sold him from amongst our imported ones."

I notice in "The Gardener's Chronicle" a report of an exhibition of the

Royal Botanic Society last May, in which was the following reference to *C. caudatum*, perhaps the most remarkable species of the Cypripedium tribe: —

"Foremost among the orchids was a plant of *Cypripedium caudatum*, bearing a dozen great brown-stained, greenish-yellow blossoms, from which hung ribbon-like tails quite two and a half feet in length."

Messrs. James Veitch & Sons in a recent letter speak of a fine plant of *C. lævigatum* coming into flower, which fully maintains the high opinion formed of it last year. This species will be found figured and described in Curtis's "Botanical Magazine" for 1865, plate 5508; and *C. Stonei* in same journal for 1862, plate 5349.

Of the cultivation of tropical *Cypripedia*, the Messrs. Veitch write as follows: —

"We devote a compartment in our extensive range of orchid-houses to the exclusive cultivation of *Cypripedia;* and in their management we have been most successful. In this house, the temperature ranges from 60° Fahrenheit in the winter to 80° and 85° in the summer. The soil we use is a very fibrous peat, mixed with a little sphagnum moss and sand; and we believe a great point is to give the plants plenty of moisture, both at the roots and overhead, during the summer-time, and keep only moderately damp in the winter."

The special mission of every plant is to produce flowers and seeds; but my *C. Schlimi* has departed this life without fulfilling its destiny. I had vainly hoped for a spike of its brilliant flowers before it went out of existence. However, it may serve a benevolent purpose in possibly contributing to the future glory of some indigenous cypriped; for the leaves of plants as they perish are transformed into vegetable mould indispensable to the life of plants. In vegetable nature, death prepares for new life; and they together form the "mysterious circle of organic life which has neither beginning nor end."

My *C. Lowii*, which is a superb, vigorous plant, with long, broad leaves, is throwing up a fine flower-stem, and will soon be in full bloom. This stately species I have not before seen in flower. A plant imported at the same time with mine, belonging to a gentleman in this vicinity, has a flower-stem up six or seven inches, bearing five flower-buds.

My *C. Pearcei* is growing rapidly, and pushing shoots in every direction. There are already eight or ten shoots upon the plant, including the old growths. It is a very free-growing and free-flowering species; and will, when better known, undoubtedly be very popular.

Bidding a final adieu to the *Cypripedium* family-circle, so far as the pages of this journal are concerned, I will proceed with some general observations upon the subject of æsthetics, and especially æsthetic botany, continuing and concluding the ideas with which I began these papers upon *Cypripedia.*

Certain practical persons are wont to slightly esteem those who give thought to the study of flowers, and to depreciate those who minister to the finer needs, the imaginative wants, of the race; believing themselves more important and more honorable facts in the social economy of civilization, because they are devoted to occupations that help man to eat and drink, and that bear upon the necessities of human life. But they are mistaken about even the social and commercial importance of things that are "the delight of the eye and the pride of life." The five senses of man have a positive weight in the scheme of human enterprise; for pleasure, that is the gratification of these senses, is the moving cause of almost all business. It has been remarked by an able writer upon political science, that "it is upon the tastes, the fancies, the passions, of mankind, that those sublime productions of human ingenuity known as systems of finance and taxation ultimately rest."

The organization and elevation of these tastes, fancies, and passions, is the aim of æsthetics. It seeks to raise men out of the lower ranges of human life into a spiritual region where the sentiments are in active exercise, and where investments are made in spiritual stocks which pay dividends in ideal wealth.

We study out the best and most economical principles for the application of our labor, and leave our tastes and sentiments to be governed by animal instincts. Why, even the "vegetable population, which covers and adorns the globe," glories in instincts. The roots of plants show such vital instinct in the search for food, and in other ways, that Bonnet, the Swiss naturalist, observed with reference to it, that it was sometimes difficult to distinguish

"a cat from a rose-tree." There is no need of referring to what are styled the lower animals, which enjoy no moral sentiments; for even the vegetables, whose functions are reckoned the most limited, compete with us successfully in the scale of instinct. The gift of intellect is not the crowning superiority of man: the endowment of soul, which gives spiritual pre-eminence, is his chief glory. This embraces moral susceptibilities, feelings, and sentiments. The beating of the heart in response to all that is great and good emanates from this source. The love of the beautiful is its natural offspring. We need, besides burnishing our intellects and adapting our labor to the necessities of civilization, to develop the moral faculties, and to organize the gratifications of the imagination upon some system of principles, that amusement may be the associate of elevated sentiments. We need some more effectual harmonizer than our educational system. Peter the Great of Russia, believing that the study of Nature tends directly to the civilization of a nation, conceived an idea to refine and civilize his barbarian subjects. He established, at an enormous expense, a Museum of Natural History at St. Petersburg; and, in order to induce his dram-loving subjects to go there, he ordered a glass of brandy to be presented to every visitor. The temperance zealots of to-day, in estimating the profit and loss of this enterprise, might not favor the czar; but all rational people must acknowledge his sagacity, and observe the compliment he paid to the study which we especially advocate in these pages. The Creator of the world has embellished and made beautiful all that is exposed to our eyes. The love of the beautiful is a principle of our nature; and to contemplate and enjoy the grace and beauty of flowers, of music, and of art, is the highest function of man's moral economy. We know very little of the life of plants. Their little histories are more beautiful and charming than many which entertain us in the regions of written romance. We may resign their scientific characteristics to the botanists; but we may all learn enough of their habits and attractions, not only to enjoy the forms and colors and fragrance of flowers, but to appreciate the lovely and beautiful features of plant-life. The sleep of plants, the vitality of seeds, the dispersion of plants, the insects that live upon plants (thirty thousand different kinds of insects which prey upon wheat alone have been discovered), and the myriad exhibitions of intelligence and instinct which plants exhibit to even the

superficial observer, are subjects which cannot fail to awaken interest and admiration.

Hear how eloquently a true lover of Nature discourses upon one of the commonest flowers to be met with in the fields. Daisy means "day's eye," because it opens when the sun rises, and shuts up and goes to sleep when he sets. Oliver Wendell Holmes, in "The Autocrat of the Breakfast-Table," looks with the eye of a philosopher and poet, as well as a naturalist, upon the humble daisy, and describes it and its surroundings in the following beautiful words: —

"You cannot go into a meadow, and pick up a daisy by the roots, without breaking up a society of nice relations, and detecting a principle more extensive and refined than mere gravitation. The handful of earth that follows the tiny roots of the little flower is replete with social elements. A little social circle has been formed around the germinating daisy. The sunbeam and the dewdrop met there, and the soft summer breeze came whispering through the tall grass to join the silent concert. The earth took them to the daisy-gem, and all went to work to show that flower to the sun. Each mingled in the honey of its influence, and they nursed the 'wee canny thing' with an aliment that made it grow; and, when it lifted up its eyes toward the sky, they wove a soft carpet of grass for its feet. And the sun saw it through the green leaves, and smiled as he passed on. By starlight and moonlight they worked on. And the daisy lifted up its head; and one morning, while the sun was looking, it put on its silver diadem, and showed its yellow petals to the stars: and it nodded to the little birds that were swimming in the sky; and all of them that had silver-lined wings, and birds in black, gray, and quaker-brown, came, and querulsome blue-bird and the courtesying yellow-bird came, and sang a coronation of that daisy."

George B. Warren, Jun.

Troy.

A PLEA FOR THE PLUM-TREES.

"SURELY you are not ordering plums?" said a friend a few days since, looking over our shoulder as we were writing an order for the "few more fruit-trees" which every one owning an acre of land feels it incumbent upon him to plant each spring. "And why not?" we returned with some warmth. "Simply because you can't make them grow, in the first place; and, in the second place, won't get any fruit." Two gratuitous and untrue assertions, as we proved to our friend, and as we are about to show to you, O pomological reader of "The Journal of Horticulture"! And, first, any one can make a plum-tree grow; for there is no fruit-tree more easily transplanted, or which will more readily adapt itself to various soils. Yet the result of the growth is usually a plentiful crop of black-wart; and the harvest of fruit, both from the diseased state of the tree and the attacks of the curculio, is reduced to a minimum. A few years of this result generally satisfies the most ardent cultivator of plums; and some spring morning his plum-trees go into the brush-heap, and their places are supplied by dwarf pears or other more desirable fruit. This had been our friend's experience; and thus his surprise that one whom he had credited with some slight knowledge of horticulture should deliberately order plum-trees.

If memory serves us, however, not all the plum-trees that came in response to that order are planted in our garden; and a certain then incredulous friend is now looking forward to crops of plums of his own raising.

And thus it chanced, our order filled, we lighted our cigars for a stroll in the garden. A turn in the walk brought us in sight of some small trees, or rather overgrown bushes, which seemed loaded with flower-buds, and which, to the practised eye, at once revealed themselves as plum-trees. The bud developed into snowy bloom; and flower, in turn, to golden, green, and purple plums. No black-wart marred the smooth beauty of the branches, nor aphis curled the leaves. Year follows year with the same promise, which a little careful culture, and attention given at the right time, fulfils in due time. How is it done? Some five years since, we determined to grow plums; not being willing, in this respect, to admit the doctrine of impossibility. Having been through a curculio experience, and not having a large

hen-yard to plant our trees in, with infinite chickens to devour innumerable curculios, our first point was to have our trees of a manageable size. This we accomplished by planting dwarfs budded on the *Mirabelle* stock, which accomplishes the same for the plum that the Paradise does for the apple, or the Mahaleb for the cherry.

Our first essay was a dozen trees two years from the bud; for beauty of form was an object, and we preferred to do the shaping ourselves. Pruning the trees well in, we planted them; and, by judicious pinching during the first summer, we had, by the second spring, twelve small but shapely trees. About the first of April, we treated each tree to a quart of salt, such as the scrapings of beef-barrels, and threw a little of the brine over the branches. The spores of black-wart were in the air, and we were unwilling to allow them to find a suitable place for development on our pet trees.

As an additional precaution, we went all over the hedge-rows of the estate, and cut down and burned all the wild plum and scrub-cherry trees, many of which were masses of black-wart, that the spores might not fill the air and find unwelcome lodgement.

A second year's growth increased the beauty of the trees, which were now of considerable size; and autumn showed us a few fruit-spurs on some of the larger trees. We had one case of black-wart on a tree which was on richer soil than the others: it appeared on a small branch, and was about as large as a pea. The treatment was, cutting it out with a sharp knife, and an extra quart of salt at the roots of that tree.

The next spring gave us a few blossoms. And now for enemy number two, — the cheerful Turk, the curculio! No sooner had the blossom faded than we syringed the trees thoroughly, and dusted them with air-slacked lime, so that they were perfectly white. This treatment was continued for a month; the lime being renewed after a rain, or if blown off by the wind. We also jarred the trees morning and night, and waged a crusading war of extermination.

The result was, most of the plums escaped: some few, however, were bitten; and, unwilling to lose even these, with a fine penknife we removed the egg. The wound healed, and the plum ripened.

The result was, we had plums enough to show us that a few years would

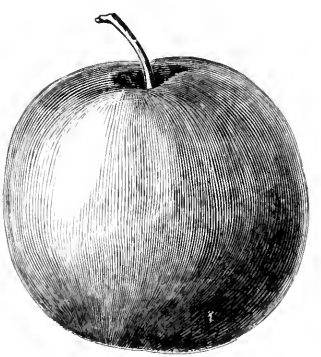
give us an abundance, and to prove that a crop of plums was not an impossibility.

The next year, as the trees were larger, we doubled the allowance of salt; sprinkling it on the ground in April, and allowing the spring-rains to wash it in.

No black-wart appeared. The trees blossomed well, set, and matured their fruit; and thus to the present time, when we have about fifty plum-trees of all ages, and apricots which require the same treatment. Now, will any one say that the end is not worth the means? Granted that the plum is not a favorite fruit; that it is too rich and cloying to be wholesome if eaten freely. What is more beautiful in growth, upon the table, or more valuable for a winter preserve, and who will mention a more delicious fruit, than a well-ripened Green Gage? The expense is small, the trouble is but little, the return is large. Plums are now so scarce, that they command a good price in the market; and an orchard would yield large returns.

For a small garden, the trees are most ornamental, and, if kept in shape, are worth growing for their beauty alone: they may be pruned into pyramids, or grown with fastigiate or round heads. The soil around them should always be kept open, and, during the summer, should not be allowed to become bound.

But we hear the reader say, "What varieties did you plant?" We have many; but we mention only a few of the best: —

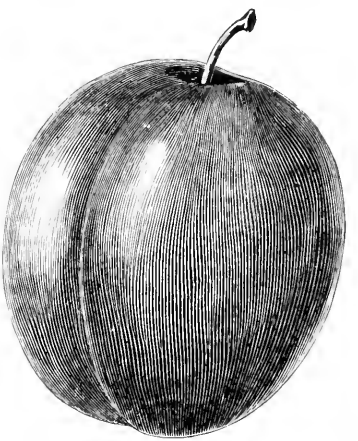


And, first, the *Green Gage*, than which there can be nothing better. It is

a slow and often an irregular grower, and one of the most difficult trees to get into shape ; but it bears, after it once comes into bearing, even and regular crops. The fruit is small, green or yellowish-green, spotted with red ; flesh green, melting, juicy, of a rich aromatic flavor. A more delicious fruit it would be difficult to find.

Next we have the *Imperial Gage*, a seedling of the last, and though by no means as fine a plum, yet a very valuable and excellent variety.

Unlike the last, it is a free grower, and requires careful pruning, the tree having a tendency to run up. The foliage is dark and healthy ; the fruit large, pale-green, yellowish when ripe, with dull green stripes and a whitish

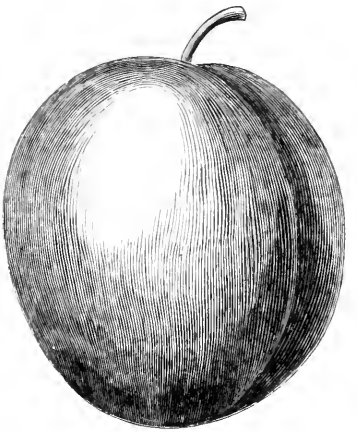


bloom. It is an abundant bearer ; indeed, if not thinned, is apt to overbear. As a market-fruit, it should be extensively planted.

Next, for beauty of growth, and regularity of bearing, we should place *Pond's Seedling ;* though it is not a plum of first quality. The fruit is roundish, of medium size ; flesh yellow, sweet, with a very pleasant acid combination. It is a very handsome tree, and always gives satisfactory crops. A far better plum, but yet, perhaps, not so desirable as a market-fruit, is the *Jefferson.*

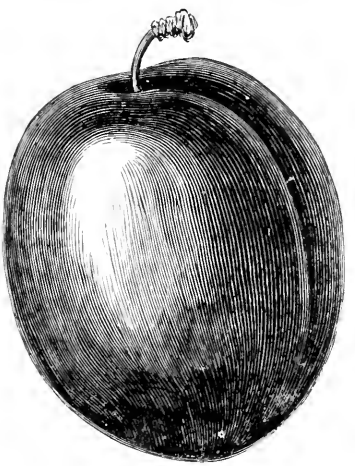
For beauty and flavor, we cannot praise it too highly. The fruit is large, golden-yellow, with a reddish cheek ; flesh orange, very rich and luscious. It hangs long on the tree, and is always fine. It is an American seedling,

and is one of the most valuable varieties. The tree is a good grower, and



of regular habit.

Smith's Orleans is a tree of very vigorous growth, and is a handsome and productive variety. It is a purple plum, of large size; the skin being red-



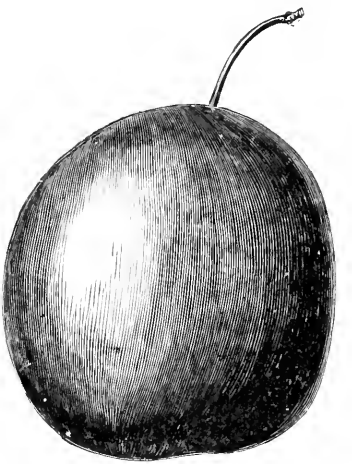
dish-purple, and covered with a rich blue bloom. The flesh is yellow, with a rich, brisk, racy flavor. Altogether it is a plum which will give general satisfaction.

For size and beauty, the *Washington* holds first rank, and was formerly one of the most popular plums. It always commands a good price in the market, and is well worthy of cultivation.

Prince's Yellow Gage is a very hardy, productive, and delicious plum. It is very juicy, of a rich, sugary flavor, and is always a favorite variety.

Reine Claude de Bavay is a desirable late variety, often not ripening until October. The color is greenish-yellow, and the flesh is rich and juicy.

The *Thomas* is a very handsome native variety, which has attained some



popularity. The fruit is large, reddish-salmon, with yellow dots; the flesh yellow, with a peculiarly pleasant flavor. Tree of vigorous habit.

To these we may add *Coe's Golden Drop*, a very beautiful plum; *Duane's Purple*, a valuable variety; *Bradshaw*, a large dark plum; *Victoria*, *Columbia*, and *M'Laughlin;* not forgetting an old-fashioned *Damson*, or, better, the *Shropshire Damson*, for preserving; and we have a selection which will give every satisfaction. *E. S. R., Jun.*

Glen Ridge, May, 1868.

SHIPPING FRUIT-PACKAGES.

At the recent meeting of the Northern Illinois Horticultural Society, held at the pretty little city of Freeport, a portion of one of the meetings was devoted to a discussion of the best modes of shipping and marketing fruit.

As the custom of employing an agent in the cities to which the fruit is sent is almost universal, and as the railroads furnish the chief means of transportation, the next and most important question has reference to the

particular packages in which different fruits are sent forward. It must also be remembered that the distances over which fruits are sent to Chicago vary from twenty and thirty to three hundred miles; and that the packages are often reshipped at once to hundreds of towns in the interior, and farther north, at various distances. Hence the importance of having the fruit picked just in the right condition, and packed in the most perfect manner.

It was conceded that apples were best shipped in barrels, but that it was important to exercise great care in selecting the fruit, which should all be of first quality. In packing the barrel, take out the bottom; lay in the specimens by hand, with the stem downward, until the bottom is covered; when the fruit may be placed at random, until the vessel is rather more than full. The heads are laid in place, and a follower put upon them to receive the pressure of a lever or screw that forces them down to the chine; when the hoops are driven and secured. On removing the follower, the chine-hoop is nailed to its place, the barrel reversed; and what was the bottom is marked with the name of the variety, and it becomes the top.

Pears may be packed in the same manner, except that the first layer should be laid upon their sides. In all cases, there should be but one kind of either or any fruit placed in any one package. In Chicago, they prefer boxes for pears as well as peaches. These boxes should be made of some definite size and shape, so that their contents shall be integral parts of the bushel.

This custom, however, does not prevail among those who cater to the Chicago market; but their packages contain about two-thirds of a bushel. This will be a matter of little consequence when the central system is once introduced; and we were informed that much fruit is now sold in that city by weight, so that the size of the box is a matter of less moment, and the producer will be in a fair way of having his dues in future. Complaints are still heard, however, from those who are provided with boxes containing an honest bushel, as is required in some other markets, that, when they come in competition with the short measures, they suffer heavy losses, because the people will not pay a discriminating price.

In packing the boxes, which are made with a partition in the middle to separate the fruit, they are filled from the bottom, or lower side, and the first layer is carefully placed, so as to present a good appearance when

opened. The space should be entirely filled, or rather more; so that considerable pressure has to be exerted in nailing on the boards.

The exact state of maturity to which the several fruits should have attained will depend upon the time and distance they have to be transported; and this can only be ascertained by trial with each. No specimens should be within twenty-four hours of their full maturity, or they will be bruised and seriously damaged before reaching the consumer; for the process of ripening is very much accelerated in the heated cars. On the other hand, orchardists should avoid the folly of gathering their fruits prematurely. Peaches and plums should have become pretty well colored; and the green should have changed to a white or yellow on the shaded portions of the peach. Pears may be quite green when plucked; but they should be fully grown, else they will become wilted instead of ripening. The gathering of this fruit requires more knowledge and skill than almost any other, so as to pluck the specimens when they are just in the right condition. This, however, may be acquired by proper observation with a little practice.

The shipping of small fruits is a matter of no small importance; and the wide, shallow drawers, holding half a bushel and even a bushel each, can no longer be recommended. Small baskets and boxes are much to be preferred; and it would be a great *desideratum* to have these furnished at such a rate, that they need not be returned, but would allow of their being sold with the fruit.

The American baskets, made of splints of wood, have been much in vogue. These are packed in crates, containing three courses of baskets, separated by a thin board. In placing strawberries in these baskets, it is well to arrange the upper row so that the stems shall all be down, and the points up, as they thus present a finer appearance. All fruit should be assorted into first and second quality; and, in packing for a distant market, all those which are over-ripe should be rejected. There is another box, made of thin veneers, generally of elm-wood, with a bottom sprung in to its place half an inch above the lower edge of the sides, and perforated with holes for ventilation.

D. R. Dunlap of Zanesville, O., has exhibited a system of boxes which is very promising: they are very neatly made, and come in crates made of light stuff that will be sufficiently strong to keep the fruit from damage,

and at the same time allow of sufficient ventilation. These are sold at a reasonable price, and are made, like the others, in pints and quarts; though the larger size is generally preferred.

At the Freeport meeting, Mr. Platt, an extensive dealer in fruits, exhibited a very good device for a fruit-box, which is prepared at the mill, in strips for the sides, and squares for the bottoms, all ready for packing in small space for shipment to the fruit-grower, who can readily put them together, fastening the sides by a sort of tuck or clip; and slots punched in the strips receive projections from the bottom-piece, which is thus held in its place. These, he said, could be furnished by the manufacturers at a very low figure; perhaps for seven or eight dollars a thousand. They are made by Wilcox at St. Joseph, Mich.

Mr. Colby at South Pass, Ill., and another manufacturer at Madison, Wis., were also referred to as box-makers. Mr. Platt's experience on one point appears to have great value, and should be noted by all shippers of small fruits: it is this, — that there should never be more than two tiers of boxes or baskets in one crate. It is customary to economize crates by making them to contain three tiers; but experience in the trade has induced Mr. Platt to decide against this custom, on account of the damage caused by pressure on the lowest fruit.

The packing and packages of grapes is a matter of considerable importance; but its consideration must be postponed for another communication.

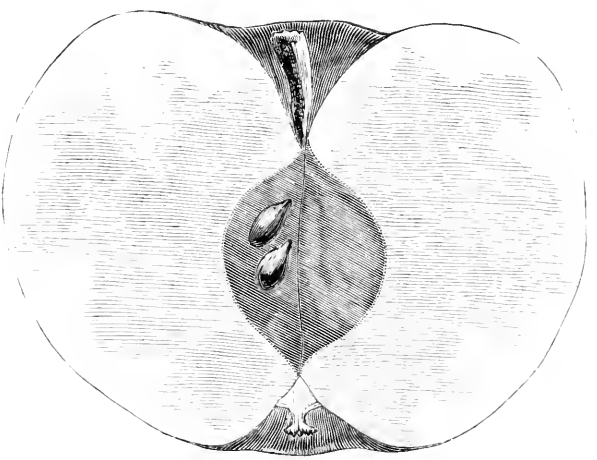
* * *

EVER-BEARING RASPBERRIES.

We want to prevent people being duped with these so-called ever-bearing raspberries. I have travelled considerably in my time, and have sat at the tables of a good many prominent agriculturists and horticulturists; but I have never yet found these autumn-berries on the tables of any of these gentlemen. I don't want to prevent gentlemen who can from furnishing us with such fruit; but I do want to prevent the expectations of the public being raised too high by them. — *M. L. Dunlap.*

NEW APPLE.

PINE STRAWBERRY APPLE. — Tree healthy, vigorous; shoots very stout, upright; foliage large, abundant; fruit medium to large, conical, regular; surface pale yellow, blushed and splashed with light carmine; dots scat-



tered, large, yellow; basin medium; eye medium, open; cavity wide, green, somewhat brown; stem short and thick, or long; core small, oval, closed, meeting the eye; seeds numerous, plump, dark; flesh yellow, tough, juicy; flavor sweet; quality good; season, winter. *Warder.*

To the Editors of "The American Journal of Horticulture and Florist's Companion."

Sir, — I spent part of the last summer in Switzerland and Germany; but, about countries so generally visited and often described, I can tell you but little that you probably do not already know from descriptions that are much better than any that I am capable of making. Switzerland, and the watering-places in the neighborhood of the Rhine, are, in the summer season, more generally resorted to for recreation or amusement than, perhaps, any other places in Europe. These, besides their own attractions of beautiful or sublime scenery and other inducements to visitors, have, in addition, those afforded by the beauties of one of the routes, the Rhine, by which they are very frequently and perhaps most easily reached, either by steamers on the river or by railway along its banks. The former is the best mode for seeing all the beauties of the route, as from it views can be obtained of the old picturesque towns and villages along its shores, or the feudal remains that crown the heights on both sides of the river; while, from the railway, many of these must necessarily be hidden from sight. As, however, on the lower part of the river, the scenery is not interesting, and a passage by rail is much quicker than by boat, many prefer the former, or content themselves with a passage in the steamer on that part of the river where the views are finest and most interesting, — from Coblentz to Mayence. I have frequently heard disparaging remarks from some of our countrymen on the claims of the Rhine to beauty, and unfavorable comparison of it with the Hudson; but I must say, that, without intending to make any comparison between it and any other river, to me the scenery along its course was beautiful, and I found much that was of interest. For much of its course above Cologne, the river is bounded on both sides by hills, sometimes high, rocky, and precipitous; at

others lower and more smooth and rounded, occasionally close to the river; at other times receding from it, leaving a space of level ground at their foot. In some places, however, the banks are low, and the shore spreads out into broad plains. This is so in the upper part of its course near Mayence, as well as lower down by Cologne. The southern slopes of the hills are appropriated to vineyards, whenever there is sufficient soil for the vines to grow; some of the level ground being also used for the same purpose: and, as the river is tortuous or winding in its course, these southern slopes are sometimes on one bank of the river, sometimes on the other; and are used for vines, according to their more or less exposure to the sun. From the vineyards on the banks of the Rhine are made some of the most esteemed German wines, — as the Johannisburger, the Rudesheimer, and the Marcoburner; although a preference is sometimes given to that made from the vineyards on the Moselle, one of the affluents of the Rhine, coming into it at Coblentz. The vineyard of Johannisburg contains about seventy acres on the southern slopes of a rather low, conical-shaped hill lying on the right bank of the river. Here is made the wine that in favorable years, when of superior quality, is only used by princes, or those of great wealth; although that of a lower quality can be readily obtained. Of late years, the Steinburger — a wine made in Nassau, a little farther up the river — has been considered to rival the Johannisburg in quality. The vineyards that produce the Johannisburger, the Rudesheimer, and the Marcoburner, are in near contiguity; and it is not easy to see what should cause the difference in quality between them, unless it be more or less care and skill in the manufacture, that has probably much to do with it: but that would not wholly account for a difference in flavor, that may be caused by the inorganic elements of the soil where the vines are grown. While the vine is the most important cultivation on the banks of the Rhine, that of other and different kinds of fruit is not neglected. Apricots and cherries seem abundant, and pear and apple trees in great numbers are noticed; much of the level ground along the river being devoted to the raising of the crops usually cultivated in temperate climates.

Of Switzerland I can give but a brief and very general account: indeed, considering that a very considerable part of it is occupied by high mountain-ranges, and that many lakes (some quite large) are scattered about its surface, perhaps it would be as well for me to content myself with describing it as a land of lakes and mountains. But this, to a certain extent true, would not be wholly accurate; because a portion of its territory is of a different character, and adapted to agricultural purposes. On its southern and eastern side, much of Switzerland is occupied by the mountains and ridges of the chain of the high Alps, whose highest summits are covered with perpetual snow; while their sides, to the line where vegetation ceases, far below, are stupendous naked rocks, rent and split into fantastic forms of peaks, minarets, and domes. Of the lower mountains of the range, many are bare, naked rocks, with their strata twisted and contorted in various directions by the violent convulsion that, perhaps, caused their existence; some of them with the angles of their sides worn and rounded into the resemblance of the towers and bastions of a fortress; others with their sides sheer perpendicular precipices, hundreds of feet high, — so high,

that the small streams that fall in cascades from their summits are dispersed in spray before reaching their base. Occasionally the sides of these mountains of rocks have their strata so straight and regular, that they have the appearance of a wall of blocks laid in masonry. Yet while there is here everywhere grandeur and sublimity, still all is not of the barrenness of desolation; for mixed with the grand and sublime are elements of beauty of a different kind. Among these mountains are fertile valleys, clothed with vegetation, with trees and shrubs, and often with a stream flowing through them. Very frequently the lower slopes of the hills are covered with a vigorous growth of spruce, beech, and other trees; and sometimes, too, with grass, affording pasture in summer for herds of cattle, and hay for winter, even when so lofty that the *chalets* of the herdsmen seem, when looked at from below, like the toy-houses of children: thus removing the impression of dreariness that entire sterility is calculated to produce; forming in many places landscapes, whose beauty can hardly fail to vividly impress, and that none can fail to admire.

But while, on its southern and eastern sides, Switzerland is mountainous, and much of it on that account unsuited to agriculture, except to a limited extent, on its northern and western it is of a different character. Here the country is rolling with broad valleys and wide plains, not devoid of hills, but without having them to an extent to prevent or seriously interfere with the pursuits of husbandry. Here farming is carried on somewhat extensively, although not on a scale sufficient to provide for the wants of its inhabitants; and, probably owing to the mountainous character of much of its territory, Switzerland must depend on its neighbors for much of its supply of bread-stuffs. The crops raised and kind of farming here pursued do not seem essentially different from that to which we are accustomed in New England; neither do its usual processes seem to be followed in a very different manner. In addition, however, to the usual crops of hay, grain of different kinds, potatoes, and other vegetables, tobacco is cultivated to some extent; also hemp and lucern. I also noticed, occasionally, small fields of poppies. Both oxen and cows are used for draught and field work; and men and women are seen at work together in the fields. Large, detached houses are frequently met with, as if belonging to large farming establishments, frequently having the dwelling of the proprietor and the stables under the same roof. The architecture of the houses is of a peculiar kind, of which I cannot attempt a description, but with which you are no doubt familiar, from the small specimen-houses frequently brought to America, or from engraved views of Swiss scenery. This peculiar style, however, is rarely met with in towns or cities, and prevails principally in the mountainous parts of the country.

The lakes of Switzerland are perhaps, to many, its most attractive feature; and the towns upon their borders are the principal resorts of visitors. These vary considerably in extent, and in the character of their scenery, but are all beautiful, and without a successful rival, except the Italian lakes on the southern sides of the mountains, to which I should give a very decided preference. Several of the Swiss lakes are very extensive sheets of water, navigated by steamers, that afford to the towns upon their shores means of intercommunication;

and at one end or the other of these large lakes are situated some of the largest cities or towns in the confederacy. The shores of some of the lakes, as that of Constance and Zurich, seem to be, in general, smooth, rounded hills, or level, with towns or villages, some of considerable size, along their banks; others, like that of Lucerne, bounded for the most part by high hills, their sides generally covered with wood, with the lofty mountains of the Riga on one side, and Pilate on the other; but these hills, towards the foot of the lake, falling away to rounded slopes, occupied for villas and country-houses, with the old picturesque city of Lucerne yet surrounded on the land side by its mediæval walls and towers, or that of Geneva, with on one side high, precipitous, rocky mountains, and, on the other, hills covered with grass, trees, or cultivation, sites for towns, villages, and villas, with the city at its foot. Others of these lakes are smaller in extent, generally in dells or basins, surrounded by high hills or mountains, mostly covered with trees, but sometimes rocky, with snow, even in summer, upon their summits.

Grapes are grown to some extent in Switzerland, especially in the southern part, from which wine is made; but this is rather austere, and its quality is not such as to commend it to strangers generally. If one can form an opinion from the number of trees seen, a good many pears and apples are raised; but I have never happened to be there in the season for these fruits. Cherries are very good: those that I saw were very large, good flavored, and sweet. Two varieties are common, — one light red, and the other black, — the soil and climate appearing to suit this fruit; and, in the southern part of the country, I have eaten very good peaches. The only strawberries that I met with were the small wild strawberry, that in August were abundant. It may not be out of place to say, that walnut-trees, known in the United States as English walnut, are frequently seen.

The flora of Switzerland is very rich and varied. Almost anywhere, in a short walk on a mountain's side, numerous wild flowers of many varieties will be met with; but, unfortunately, I know too little of botany to be able to specify more than a very few of the kinds. Among those that I did know, I remember a blue campanula as being very common, and also a beautiful lily that I did not recollect to have before seen. *Joseph S. Cabot.*

Feb. 25, 1868.

Montgomery Grape. — We give the substance of a letter we have received concerning this grape, hoping that it may prove better than the writer thinks: —

"In February number, 'T. B., Home Farm, Io.,' wishes to know something of the *Montgomery Grape*. It was a seedling of a foreign grape grown by Isaac Merrit, Hart's Village, N.Y.; and, in character, is still a foreign grape. It is probably from a *Chapelas* or *Sweetwater;* is no hardier or no better than any poor Chapelas. 'Canadian Chief' is about the same. Either of them will grow well under glass; that is, produce large bunches, and ripen. But it is a poor grape, and not worth growing under glass."

DETECTING BARREN STRAWBERRY-PLANTS. — Whilst engaged in filling our strawberry-house with plants that have been prepared for forcing, I have been led to remember what was said last spring about barren strawberry-plants; one of our gardening friends being disappointed, after forcing his plants, to find that very few of them showed any blossoms. It is quite evident, from what he said about his plants, that they were barren. Barren strawberry-plants may easily be distinguished from fruitful plants now, or while they are being prepared in the autumn. I prepare for forcing nearly two thousand plants every year, and I have had a little trouble myself with barren ones; for, after forcing my plants, I very often make plantations of them in the kitchen-garden, and I frequently find some that have become barren. When I come to look for early runners from these plantations, I find that I can take them much sooner from barren than from fruitful plants; but all that they will give me for my trouble will be leaves and runners. In the spring, they first produce a leaf, and then a runner, and so on alternately; and my firm belief is, that, when strawberry-plants once begin to do that, no one can make them to grow any other way. It matters not how many runners are taken; for I find that these will produce nothing but leaves and runners again. It is quite possible for strawberry-plants to be unfruitful one year, and very fruitful the next; but such plants grow very differently from the above. — *H. Mansley, in Eng. Journal of Horticulture.*

WHAT VARIETIES OF POTATO SHALL WE CULTIVATE? — Some forty years since, we reckoned as surely upon a crop of potatoes as we now do upon a crop of beans. The potato-disease was unknown; and, no matter what variety we planted, we expected a return of thirty or forty and sometimes sixty fold. True, there was a difference in quality then as now; but as long as all varieties were healthy, and the tuber was mainly used in feeding stock, we considered the variety as of minor importance. Many farmers planted the varieties indiscriminately in the same field, and housed them in the same bin. This was ever a slovenly practice, a mixing of tares and wheat, which we fear some continue to this day. There is as much choice in the varieties of potato as there is in the breeds of cattle; and, if we wish to attain any excellence or profit as cultivators, we must exercise the skill and discrimination of the stock-breeders. Some are hardy, others delicate; some ripen early, others late; some are well flavored, others unpalatable; some prolific, others unproductive; some well formed, others ugly; some farinaceous, others soggy. Now, if we plant healthy and diseased potatoes together, it is much like placing a robust child to sleep with an aged and infirm person. It is possible that the vigor of youth may counteract the tendency to disease, which contact with the decay of age is sure to induce; but the chances are against it. Disease of every kind propagates itself. "One rotten egg corrupts the whole clutch," as the Irish saying is; and we all must have noticed how one rotten apple spreads decay through the whole barrel. So, in a hill or bin, one rotten potato is a prolific source of disease to all its companions; and if we plant healthy and delicate potatoes together, or house them together, we either show ignorance of the law of catalysis, or gross carelessness.

Breeders have laid down the most prominent points of a good animal, by which they are governed in awarding premiums and selecting stock, with as much faith as a Churchman has in the Thirty-nine Articles of his creed; and we propose to name a few characteristics of a good potato. In the first place, it should be healthy. As a good constitution is the first requisite of a good animal, so vigor is the leading quality in a potato. No other quality, and no combination of qualities, will compensate for the want of this. We have never seen a potato, that, for table-use, came up to the Carter; but still few venture to plant this variety, as its constitution is so impaired, either by age or abuse, that it cannot resist disease except under the most favorable circumstances. The same objection, though in an inferior degree, lies against the Mercer or Chenango, and, indeed, against many of the otherwise excellent table-potatoes. We remember once hearing a cautious old bachelor say, that, in selecting a wife, he should consider health as the prime quality. We were inclined to smile at his placing the physical above the mental and moral in a wife; but, as a potato has no mental nor moral quality, we shall certainly place health as first among the characteristics of a good variety.

Next to health we rank flavor. Some may sneer at the idea of flavor in a potato; but every variety has a taste peculiar to itself, as marked as is the flavor of the different varieties of apple. That potato is best, which, like pure water, has little taste. Some varieties are bitter, like the waters of Marah; and it is a little singular that those who are addicted to the use of strong potatoes prefer them to the milder kinds, much as those who are accustomed to drink the muddy water of the Missouri complain of the pure spring-water of New England as having no body to it. There is no accounting for tastes; but there is no doubt that an unvitiated palate prefers a mild potato, as it does pure water. The flavor depends partly upon the soil where the potato is grown, and the manner with which the soil is enriched. We have known the same variety grown in sandy land, lightened with muck and leaf-mould, mild and agreeable; while, grown in clay enriched by sharp manure, it became strong, and even bitter. The Carter is the standard potato for a mild, pleasant flavor; the Jackson White, a seedling from the Carter, is flavored much like its parent; and the Early Goodrich commends itself in this regard to universal favor.

Another characteristic of a good potato is its farinaceous quality. Possibly we might become accustomed to a soggy potato, so as to prefer it to a mealy one; but it will be some years hence, and after long and self-denying practice. Possibly the mealy quality can be carried to excess, so that the potato will fall to pieces in boiling, and will not have consistency enough to be broiled or fried in a second cooking. We have heard this objection made to the Dover. The first edition of it is good, light as sponge-cake; but it is almost impossible to warm it over, and bring it on the table in decent shape. As the first cooking is the more important one, and as the farinaceous quality is so desirable, there is little danger of cultivators paying too much attention to its development.

Form is another quality, to which all potato-growers should have an eye. A deep-eyed, hunch-backed potato may taste just as well as a smooth, well-formed one; but there is great waste in cooking it, and the market value is and should

be less. The Colebrook Seedling is a model in its form ; a smooth, egg-shaped potato, with seldom an excrescence upon it. The State of Maine and the St. Helena are looked upon with great favor, as is many a belle, mainly for their good form. We may decry good looks in women or potatoes as much as we please ; still the stubborn truth will remain, that good looks first attract the eye and find a market.

Other things being equal, we should give preference to an early and white potato over the late and red. The early potato is most likely to escape disease and frost, and comes into market when prices are high. Almost every season we hear some say in July and August, "We do not like early potatoes : they are soggy. We prefer old potatoes through the summer." To cure all such prejudices needs only a few doses of Early Goodrich, taken at dinner-time. One dose will generally suffice ; but a week's application is warranted to cure. As for red potatoes, we know no reason why they may not be as good as white ones ; neither do we know any reason why a red man may not be as good as a white man : but we all prefer to be white, and we all prefer white potatoes.

Avoid a deep-eyed potato. There is great waste in buying them, as we buy much air if we buy per bushel. In cooking, there is still further waste. Still some of the deep-eyed potatoes are so good, that we can afford to pocket these losses. The Garnet Chili is imperfect in this particular, but is too good a producer, and too healthy and well flavored, to be discarded for this one defect. Moreover, it is the father of the Rose, the latest wonder in the potato world, which is selling for two dollars per pound. At the relative prices, we prefer the old block to the young chip.

We shall do injustice to our own feelings if we close this brief article on the different varieties of potato without paying a tribute to the memory of the late Rev. Chauncey E. Goodrich of Utica, N.Y., who for sixteen years studied this subject most carefully, and left us a rich legacy in the results of his investigations. From some constitutional idiosyncrasy, Mr. Goodrich was unable to eat potatoes himself; which fact makes his persevering labors in studying the habits of the plant, and originating new varieties, all the more remarkable. As early as 1846, his attention was called to the potato-disease. The result of his investigations was the conclusion, that the causes of the disease of this semi-tropical plant were the changes and intensities of the weather, the character of the soil, and the artificial mode of culture. The constitution of the potato thus became impaired, and transmitted its want of vigor to succeeding generations, each becoming more and more enfeebled. In 1848, he began importing from South America, the original home of the potato, some of the native tubers, and, from the seed of these, began reproducing new varieties. In all, he originated some fifteen thousand seedlings. These he divided into seventy-four distinct families. After four or five years' trial of the different seedlings, he rejected those whose health, yield, and habits he did not like. Mr. Goodrich died in the midst of his experiments, but not until he had established in public favor the Garnet Chili, Early Goodrich, Calico, Gleason, and Harrison varieties, which now stand at the head of the list with all well-posted and successful cultivators. These varieties can be planted with the expectation, that, under ordinary circumstances,

they will escape disease, and yield remunerative crops of excellent quality. They will doubtless degenerate in the course of time, and an occasional reproduction from seed of a healthy parentage will be necessary. The degeneracy may be retarded, if not prevented, by a judicious selection of soil, and a cultivation in accordance with the principles of vegetable pathology. *Alex. Hyde.*

KEEPING PEARS. *Editors Journal of Horticulture*, — All pear-growers are deeply interested in the success of the best methods of keeping that most noble fruit beyond its season. I think I but express the interest which many feel in asking for the experience or knowledge of any parties familiar with Prof. Nyce's system as applied to pears.

My own limited observation in the matter is exceedingly encouraging. My impression is that the flavor is not in the least impaired by keeping in that method. It is quite true, that many pears come out of the keeping-house with very little flavor; but they doubtless went in with the same lack. I have tested in a small way the Bartlett, Howell, Belle Lucrative, and Sheldon, with satisfactory results; and have to-day shown, in our South-Pass Horticultural Society, Beurré d'Anjou and Lawrence, both autumn pears here, in a condition of perfect preservation, although taken from the Chicago keeping-house three weeks since, and with flavor equal to the best in their natural season. There seems to be little doubt that pears, as other fruits, will keep as long after removal from these houses, as they would, under the same conditions, in their season. An interesting instance of their good keeping is given by President Wilder, who last summer carried a package of several autumn varieties to Europe. They kept perfectly well, and were eaten with surprise and gratification at the table of one of the leading pomologists of England. This surely is keeping well enough, and carrying far enough, to suit the views of the most practical marketer.

The extension of the season of our autumn varieties of pear into the winter and spring, and so filling the whole circle of the year with the most delightful of fruits, is surely a great and beneficent end to attain. Let us develop all the facts bearing upon so important a matter. *P. E.*

SOUTH PASS, ILL., Feb. 8, 1868.

[We hope to be able, ere long, to give a full account of the operation of one of Prof. Nyce's fruit-houses, from which we have received very fine fruit that had been kept in excellent condition for several months past its usual season. — ED.]

EARLY VEGETABLES. *Editors Journal of Horticulture*, — As you invite communications from all those interested in horticulture, I thought I would give some items of my experience with vegetables. And, first, a few words on early potatoes. Three years ago, I procured four pounds of the Early Stevens Potato. They were planted on the 7th of April: we began eating them on the 4th of July; and, though not fully ripe, they proved to be an excellent potato; fine flavor, dry and mealy, rich creamy-white; in short, all that you could ask of a potato, being just as good the following spring as on the day they were dug. Yield from the four pounds, one and three-fourths bushels.

The following year, I bought four pounds of the Early Goodrich. They

were planted beside the Stevens, at the same time; were about ten days later; quality much inferior. Yield from the four pounds, about two bushels, mostly fed to the cows. Last year they had improved in quality, though still inferior to the Stevens, and ten days later. Last spring I got four pounds of Sutton's Racehorse, which, though of good quality, disappointed me in every other respect; but, as I think they will improve, I shall try them again.

And now let me say a few words of another early potato, — better, by far, than any other that I know; one which, in thirty years' experience, has never disappointed me: I mean Ashland Kidney. For the last four years, I have grown them beside other early varieties, those above named included; and it is earlier by from two to three weeks than the earliest, and in quality and flavor equal to the best, but in yield, unless very well grown, not quite so productive. Why our seedsmen have not introduced them, I do not know. I got them from England the year after I came to this country, — eighteen years ago.

And now a few words about the new tomatoes. I planted on the same day the Keyes, Tilden, and White China, and five weeks later the Maupay and Cook's Favorite; the first three side by side, the last two a few rods distant. The first ripe tomato I got was from the Maupay (a chance one), the next was Tilden, and the third Keyes. The Tilden bore well from the first; Keyes occasionally; the Maupay abundantly; China few, and far between; the Cook's Favorite rather later (only a few days) than Tilden, but fully equal in quality. In the order of ripening, they stand with me, Maupay, Tilden, Keyes, Favorite; in size, Tilden, Maupay, Favorite, Keyes; in quality, Maupay, Favorite, Tilden, Keyes.

I intended, when I sat down, to say something of the new pease; but have not time now to say more than that the best with me are Carter's First Crop and M'Lean's Little Gem. *J. Green.*

Newton, Io.

Practical Entomology. — Every horticulturist must have been convinced by a few years' experience that insects constitute no mean foe, but that the plants of his culture suffer very severely from their depredations. It is gratifying to observe that some of the great Western States are imitating the noble example set them by the older commonwealths of the East. In this good work, Massachusetts led off in the appointment of the lamented Harris, whose Treatise has become the text-book of practical entomology. This was followed by New York, where the indefatigable Asa Fitch has long continued to make annual reports to the State Agricultural Society, which have proved of immense value to his fellow-citizens. New Jersey has the services of Dr. I. Trimble, who is an ardent and devoted student of the habits of insects, and who has already made an elegant contribution in his volume on the codling-moth.

Among the Western States, Illinois has secured the assistance of the scientific D. B. Walsh, who has for a long time been engaged in studying the insects of the Mississippi Valley, and whose services as editor of "The Practical Entomologist" have been of immense value to the cultivators of all parts of the country.

Missouri has been moving in this good work, and is likely to secure the valuable aid of a young man of great talent, Mr. C. V. Riley, whose scientific research and labors in explaining the mysteries of insect-life are familiar to the readers of "The Prairie Farmer."

The State Horticultural Society of Ohio made an effort, at their last annual meeting, in the hope of moving the legislature to make an appropriation for the support of a State naturalist. This was seconded by the Agricultural Convention, which was addressed at length upon this subject by the President of the Horticultural Society, with the effect of obtaining a strong indorsement by the farmers. They have since been pouring in petitions from every county; and, as a result, the senate has originated a bill providing for the appointment of such an officer, who shall report annually to the Board of Agriculture upon insects injurious to our crops, upon insects not injurious, and upon those which are beneficial; also upon such birds as are injurious to fruit or grain, and upon the influence of birds in the destruction of injurious insects. This bill, it is believed, will pass the legislature, and become a law.

With regard to very young pear-trees, the object of pruning should be to encourage the growth of wood in proper directions, rather than the production of a few fruits at the expense of retarding that development of the tree. The form in which the tree is to be trained must be first decided upon. For walls and espaliers, the horizontal disposition of the branches is the best. If the tree be a maiden plant, it must be headed back to three buds, — to the two best situated for producing a horizontal branch on each side; whilst the third, or uppermost, is trained upright. If the tree is a year older, and has been treated as above in the former season, the upright is to be cut a foot, or four courses of brick, higher than it was formerly. Sometimes a little deviation will be necessary on account of the buds; but generally the upright should be cut immediately above that bud which is nearest the line of brick-work along which it is desirable the horizontals should be trained. The buds to produce the latter will, of course, be situated below that line: it is proper they should be so, in order that the shoots may grow diverging upwards a little way before they take a strictly horizontal direction. These instructions with regard to the management of the upright leading shoot are applicable every year till it is finally stopped on reaching the top of the wall or espalier. If the horizontal shoots are weak, it will be advisable to shorten them about one-third. — *English Journal of Horticulture.*

The Onondaga Grape. — W. Brown Smith, Syracuse, N.Y., writes of this as follows: "The Onondaga Grape is a seedling grown in Fayetteville, in this county. A cross between Diana and Delaware. It appears to be entirely hardy, quite as much so as the Delaware; and the fruit ripens at the same time with it. It is of amber color, good size, nearly as large as the Diana. We think it combines, in some degree, the flavor of both these varieties, Diana and Delaware. It has a thick skin, and is a good keeper. The amount of wood it makes is not large; but what there is is strong, similar to the Diana." — *American Pomological Society.*

DUTCH BULBS. — The Dutch have long been celebrated for their cultivation of bulbous roots, especially tulips and hyacinths ; and from March till June the district around Haarlem is carpeted with a succession of beautiful flowers, beginning with crocuses, and ending with ranunculi. The sandy soil of the district, which is derived from the dunes, is highly favorable to bulb-culture : indeed, some of the flowers grow on the sand-hill ; and hundreds of acres of valuable land are, in consequence, devoted to flower-farming. In the proper season, as one drives along the roads in the neighborhood of Haarlem, he is surrounded on all sides by plantations of hyacinths and tulips in full bloom, forming a mass of color exceedingly varied and rich, while the scent exhaled is most delicious. Every house and villa has its bulb-garden ; and for long distances the eye can feast on glorious masses of richly-hued flowers. In one of the *bloemestries*, there is a bed of tulips two hundred yards in length, which, in the spring-time, is resplendent with gorgeous color ; and, in order to the better setting of them off, they are framed in a border of crown imperial lilies, and bridged over for effect every here and there with a wooden arch. It is a great pity that such a lovely flower as the tulip is scentless : Nature must have exhausted herself in the coloring. The hyacinth, however, exhales a delicate perfume, especially about midnight ; and, at Haarlem, great beds of these favorite flowers, covered over with roofs of canvas to protect them from extreme heat or rain, may be seen so arranged as to present the most vivid contrasts, or exhibit the finest harmonies of color. — *Once a Week.*

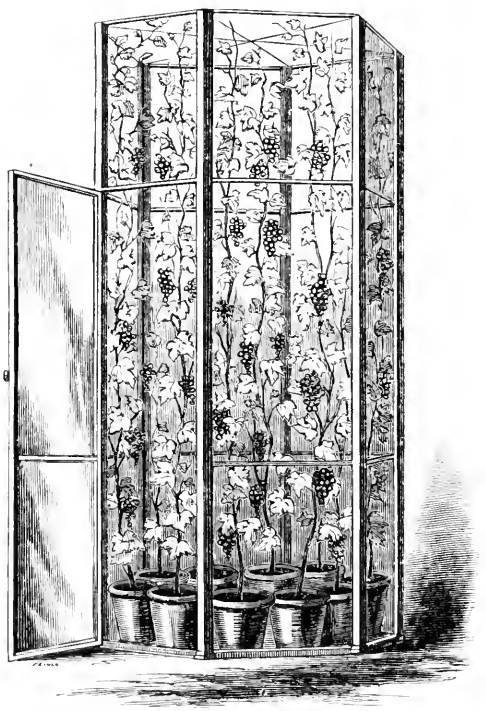
THE CYLINDER VINERY. — If I mistake not, some hints respecting a structure under the above name have appeared in your columns : no detailed description of it has, however, been given. The same ingenious gentleman who invented the ground-vinery has, by a happy thought, projected this economical and admirable structure for the cultivation of grapes ; and to prevent his invention being pirated and patented by some little extra work being added to it, of no utility except to form the groundwork of an application for a patent, he has made his cylinder-vinery a patented invention.

A month or two since, an hexagonal cylinder-vinery was erected in the nurseries at Sawbridgeworth, under the sanction of the inventor, by Mr. T. F. Rivers ; and so simple is the structure, that it was put up and completed by twelve o'clock of the day it was commenced. This structure is, indeed, so simple as to be difficult to describe ; but, as was said the other day by an amateur from a distance, it is worth a day's journey to see. The hexagonal form is that which I shall attempt to describe : but these vineries may be built with eight or ten angles, or even more, if a greater number of vines is wished for ; the number of angles determining the number of vines that can be planted in a vinery with advantage, — the hexagonal cylinder allowing space for five, the octagonal for seven, and so on.

The hexagonal vinery I have alluded to is built with six slight posts of the best fir-timber, three and a half inches by one and a half, standing nine feet out of the ground : ten feet is the height suggested by the inventor. These posts are firmly fixed in the ground by ramming, and attached to each other by strong

galvanized wire passing through them. They are placed at angles so as to form the shape above mentioned, and two feet apart. Each post is grooved, so as to admit of pieces of glass, twenty-four inches wide, sliding down edge to edge, no putty being employed ; so that what is called the *glazing* is the work of a few minutes. In each of the five spaces between the posts a vine is planted, and supported by wires stretched from post to post. The remaining space on the north is occupied with a door for entrance to the interior of the cylinder, which, in the present instance, is formed of painted calico on a light frame ; but it may, of course, be made with thin boards.

My description of the cylinder-vinery is, I fear, very lame ; but the accompanying illustration, in which the door is represented open and the vines in pots, will, I think, give your readers an idea of its appearance : —



An hexagonal cylinder-vinery is exactly like a six-sided transparent sentry-box, from nine to ten feet in height. There is, however, one peculiarity which makes the structure and its application perfectly original: it has no roof and no ventilation below, the glass touching the ground. This, at first sight, seems perfectly incongruous, and as if it must be fatal to healthy growth : it is, however, not so ; for vines and fruit-trees grow with extraordinary healthy vigor in these cylinders ; the current of cool air in sunny weather constantly descending, and

displacing the heated air.* The temperature of the cylinder vinery at Sawbridgeworth has been accurately tested, and found to be, in shade, in sunny weather, ten degrees above the shade temperature of the open air. This was ascertained in September: it is quite probable, that, in sultry weather in summer, it would exceed that.

The open roof, by admitting rain and dew, seems to be the grand discovery, the *arcanum magnum*, of the cylinder-vinery; and much credit is due to the inventor for the clever thought, thus saving amateurs the trouble of syringing and watering. The great charm of this unique invention is, that every garden ten or twelve feet square, with a southern aspect, may have a vinery, with five or more vines growing and bearing in it, for a trifling sum, — say forty or forty-five shillings. I may add, that the patentee intends to supply the posts kyanized, so as to last for half a century: the supporting wires and slight connecting ironwork will also be supplied, and, I hope, shortly advertised. It is proposed by the inventor to throw over the top of the cylinder in May, if spring-frosts are rife, a piece of frigi-domo, or canvas; allowing it to remain night and day till the end of the month, but the cylinder to be open at top all the summer and autumn. — *Frontignan, in English Journal of Horticulture.*

A LARGE VINE. — On the seacoast, midway between Tyre and Sidon, is a very ancient mulberry-garden, surrounded by some enormous olive-trees, whose hollow trunks attest their great antiquity. By the garden-side stands a cool fountain, fed by one of the mountain-streams, so welcome to the traveller for his noontide rest when travelling through that thirsty land. After resting a while at this pleasant spot, we rambled through the garden of mulberry-trees, partly for the sake of taking the fruit, but more with the intent of learning something about the rearing of silk-worms, which was there in full operation. Whilst admiring the great size of the fine old mulberry-trees, I happened to notice the bark of a tree which appeared so vine-like in its character, that I stopped to examine it, and, to my surprise, found that it was really a vine of most enormous dimensions: it rose by two main stems, and fairly rested upon six or eight of the large mulberry-trees around. I measured the two stems a few inches above the ground: the larger one was fifty and three-quarters inches in circumference; the smaller, forty inches. I endeavored to trace out the area covered by its branches, but could not obtain an exact measurement; for the branches had rambled most irregularly. It had a splendid crop of very large bunches of grapes then, but in an early stage of growth; and I was told that it is a black variety. My impression is that it is one of the largest vines in the world; and it would well repay a visit to "Ein-el-Kanterah," for that is the name of the spot, if it be sought for by any of your readers whose rambling propensities may carry them along that seashore. — *W. Wanklyn, in English Journal of Horticulture.*

* The experiment to determine the upward and downward currents of air was carried out by Mr. T. F. Rivers with thistle-down. The descending current of air was found to occupy the centre of the cylinder: the upward currents of warm air, the sides.

Destroying the Gooseberry-Caterpillar. — Much has been written, and many directions have been given, as to the destruction of the gooseberry-caterpillar, through the columns of this Journal; but I have never seen recommended the means that I have adopted with unfailing success for several years. This consists in dusting every bush with powdered white hellebore as soon as a caterpillar makes its appearance. I obtain it of a chemist at the trifling cost of 1*s.* 8*d.* per pound, which is sufficient for fifty bushes. It is very rare that there is any need to repeat the dose, as the caterpillars are found dead on or beneath the bushes the next day. The bushes should be dusted in dry weather, as the rain is apt to wash much of the hellebore off the leaves. I apply it by the means of a common sulphurator. Should any one try it, it will be found effectual. — *J. S. S., in English Journal of Horticulture.*

[The use of fresh white hellebore-powder has been frequently recommended in our pages for destroying the gooseberry-caterpillar. It should be washed off the berries before they are eaten, as it is poisonous. — *Eds.*]

The Oïdium, or Vine-Mildew. — Having found the following to be a complete cure for the above disease in vines, I think it right to give it publicity, particularly as the season is now advancing for its use. One pound of flour of sulphur, one pound of slacked lime, one gallon of rain-water; to be mixed well together, and, when boiled twenty minutes, to be taken off and strained; then to be added to the liquid one gallon more water, and boiled twenty minutes longer; next let the liquid cool (it will be of a fine amber color), and put it into a large jar, and cork.

When used, take a pint of the above, and mix it with sixteen gallons of rain-water, with which syringe your vines, and it will not injure the fruit or leaves. If the vines are under glass, syringe with cold water four days after its use.

I grow here, for champagne and otherwise, a large number of vines on and against walls; and for the last four years have found that a single syringing with the above over my vines on walls soon after blossoming, and when the fruit is about the size of very small shot, acts as a complete preventive to the disease showing itself in any shape whatever; although it is in its very worst form amongst my neighbors' vines within a few hundred yards of me.

So effectual has the application proved with me, that, last year, I sent my gardener to syringe several of my neighbors' out-of-door vines, and in every case with the most decided success, even where the disease had made considerable progress. The mixture is on no account to be used during the blossoming of the vines.

I do not see why it should not act as a preventive against other blights; and I intend this year to try it on other fruit-trees, not waiting until the blight actually makes its appearance. I also intend to mark out about a land yard of my late potato-ground, which my gardener shall syringe with the above twice a week, commencing about the first day of July next; and, should there be any beneficial result, I shall gladly inform you in due course. — *W. A. B., in English Journal of Horticulture.*

American Pomological Society at St. Louis, Mo. — The Committee on New Native Fruits reported the following as some of the best varieties brought to their notice since their last meeting : —

Apples. — *The Martin Apple.* — Originated at South Salem, —— County, Ohio. It was a seedling planted by James Wilson, and first fruited between 1815 and 1820 ; after which it was propagated by root-suckers. No trees have been grafted from it away from the farm upon which it grows. The original tree is said to be very productive, and has borne crops for nearly twenty-one years in succession, — since the present owner has occupied the farm. It is thrifty and healthy, and always full of fruit ; foliage large, branches upright.

The name was given because a little boy named Martin discovered its good qualities, and frequently stole the fruit from the original seedling-tree.

Duzenbury Apple. — Specimens from Dr. James Fountain, Jefferson Valley, Westchester County, N.Y., who informs me that it originated on the farm of Charles Duzenbury of Phillipstown, Putnam County, N.Y. Tree a vigorous grower, a good keeper, and retains its flavor well ; fruit of medium size, roundish conical ; skin greenish-yellow, shaded, and rather obscurely splashed with red nearly over the whole surface ; flesh whitish-yellow, crisp, tender, juicy, mild, sub-acid, excellent ; somewhat of the New-England Seek-no-farther flavor. Ripe December till April.

Stymus. — A new fruit, introduced by Dr. Fountain, and originated on the farm of Jacob Stymus, Dobbs's Ferry, on the Hudson. It came up by the side of an old Spitzenberg apple-tree (the whole orchard being Spitzenbergs). Growth rather more upright, but resembling it ; a good bearer ; fruit medium or above ; oblate, inclining to conic ; skin yellowish, shaded, splashed and striped with light and dark crimson nearly over the whole surface, some of the splashes of purplish crimson ; flesh of fine texture, whitish, tender, juicy, with a mild, rich, sub-acid flavor, slightly aromatic ; quality, *best.* Ripe October and November.

Mote's Sweet. — A new, beautiful white apple, raised from seed by L. S. Mote, West Milton, O. ; to whom we are indebted for specimens, and who says the tree is hardy, of moderate growth, rather spreading, and productive. Fruit large, roundish, oblate, slightly conic, angular ; skin pale whitish-yellow, with a tinge of red in the sun ; flesh yellowish, fine grained, juicy, very tender, with a rich, sweet, honeyed flavor. Ripe September.

Democrat, or *Varick.* — Received from George L Conover, West Fayette, Seneca County, N.Y. ; to whom I am indebted for specimens. Origin uncertain, but supposed to have originated in the vicinity of Trumansburg, Tompkins County, N.Y. Tree vigorous, upright, and productive ; fruit always fair ; size medium, or above, roundish, conical, inclining to oblong ; skin pale whitish yellow, rather faintly striped and splashed with light and dark crimson nearly over the whole surface ; flesh whitish, fine grained, sometimes slightly stained next the skin, very tender, juicy, mild, pleasant, sub-acid flavor. A fine dessert-fruit, ripening from December till March.

Creek. — Received of Daniel Engle, Marietta, Penn., who says it is a native

of Hellam Township, York County, Penn., where it has been fruited to a considerable extent, and is highly prized on account of its quality and extraordinary productiveness. It derives its name from Crenty Creek. Fruit medium, or below, oblate ; skin greenish-yellow, thinly shaded, and rather obscurely striped and splashed with light and dark red ; flesh white, fine grained, very tender, juicy, mild, sub-acid ; quality very good at least. Ripe November.

Hicks Apple, or *Buckram.* — Introduced by Isaac Hicks of Westbury, North Hempstead, Long Island, N.Y., who found it in a hedge about the year 1853, and says it has proved the most productive and largest very early sweet apple cultivated in that section, — earlier than Sweet Bough, and more productive. Fruit large, roundish, or roundish-oblate ; skin pale greenish-yellow, considerably striped and splashed with crimson ; flesh whitish, tender, moderately juicy, with rich, sweet flavor, slightly aromatic. Ripe August.

Park. — Introduced by William S. Carpenter of Rye, Westchester County, N.Y., who values it highly as an amateur and market fruit. It originated on the farm of Roger Park, town of Harrison, N.Y. The original tree is still standing, and about seventy-five years old. Tree thrifty, and quite upright in its growth, and bears large crops every other year ; fruit medium, roundish, inclining to conic, angular ; skin yellowish, shaded, and rather obscurely splashed and striped with light and dark crimson nearly over the whole surface ; flesh yellowish, rather firm, moderately juicy, with a rich, mild, sub-acid, slightly aromatic flavor ; very good. Ripe January to March.

Family, or *M'Loud's Family.* — An excellent early apple of Southern origin, received from P. J. Berckmans of Augusta, Ga. Mr. Berckmans says it is a beautiful grower, bears enormously, always regular. Fruit smooth, ripening for six weeks, — the most distinct foliage of any of our Southern apples ; fruit rather large, oblate, conical ; skin yellowish, shaded, striped and splashed with dull red over two-thirds its surface ; flesh white, tender, juicy, with a very mild, pleasant, sub-acid flavor ; quality very good, or best.

Slight's Lady-Apple. — A new seedling, raised by Edgar Slight, Fiskhill Plains, Duchess County, N.Y., from the Lady-Apple, and like it in every respect, except that it is double the size, and the skin a little more yellow and waxen, and comes into eating earlier in the season.

Brill's Seedling. — Raised by Francis Brill, Newark, N.J. ; and he values it highly for market and culinary purposes. Fruit large, oblong, conic, angular ; skin yellow ; flesh yellowish, tender, juicy, slightly sub-acid. Ripe October, November.

Celestia. — Received specimens from L. S. Mote, West Milton, O. One of his new seedlings, which promises to be an acquisition. Fruit rather large, roundish, inclining to conic ; skin pale-yellow ; flesh yellowish, fine grained, crisp, very tender, juicy, with a rich, mild, sub-acid flavor, with considerable aroma ; quality best. Ripe September.

Pine-creek Sweet. — Specimens of this fine sweet apple were sent us by John Hamilton of Jersey Shore, Penn. ; and he writes us that it originated at Pine Creek, Jersey Shore, Clinton County, Penn., where the original tree is still standing. Fruit large, roundish, conical ; skin pale whitish-yellow ; flesh white,

crisp, very tender, juicy, with a very rich, honeyed flavor; quality very good, if not best. Ripe October to November.

Cocklin's Favorite. — Originated with E. H. Cocklin of Shepherdstown, Penn., who describes it as a very fine dessert-fruit; keeps well, and continues in use from September till February. Tree a beautiful, upright grower, and very productive. Fruit rather small, roundish, oblate, inclining to conic; skin whitish, with a thin shade of crimson in the sun; flesh white, fine grained, crisp, very tender, juicy, mild, pleasant, sub-acid; quality very good.

Flake's Fall. — Received from James A. Nelson and Sons, of Indian Run, Mercer County, Penn.; and they inform me that it originated near that place, and is a very profitable sort for market. Moderate, rather upright grower, great bearer, and a large, valuable variety for that section. Fruit large, oblate, inclining to conic, slightly angular; skin yellowish, shaded, striped and splashed over the whole surface with light and dark crimson, almost purplish in the sun; flesh white, fine grained, crisp, tender, moderately juicy, with a very pleasant, mild, sub-acid flavor, peculiarly aromatic; quality very good, or best. Ripe September to November.

PEARS. — *Edmunds.* — Originated with Eliphalet Edmunds of Brighton, near Rochester, N.Y.; and promises to be one of the best of its season. Tree a very strong grower; fruit medium to large, somewhat irregular in form, and surface uneven, obtuse, pyriform, angular; skin yellow, with slight nettings of russet; stalk very long, set in a shallow cavity; flesh fine, whitish, juicy, melting, with a sweet, rich, peculiar flavor, somewhat like almond or walnut; quality very good or best. Ripe middle of September to middle of October.

Mary. — Not having seen the fruit of this pear, we give F. R. Elliott's description: "Raised by Christopher Wiegel of Cleveland, O., from seed of the Seckel. Tree upright, vigorous, an early and abundant bearer; fruit a little below medium in size, form generally globular, obtuse, pyriform, occasionally one-sided; skin rich, pale yellow, mostly overspread and dotted with bright, rich red, becoming deep next the calyx, and a little russet next the stem; flesh white, finely granulated, almost buttery, juicy, sweet; very good; season before the Madeleine, or early to middle of July."

Margaret. — Another of Christopher Wiegel's Seedlings. "Its history the same as the Mary. Fruit medium size, oblong, ovate; color lemon-yellow ground, — when fully ripe, mostly overspread with deep, dull red, small russet dots, and patches of russet; flesh white, finely granulated, juicy, vinous, sweet, and free from astringency. Season last of July and early August."

Other new kinds, such as Dr. Turner's, Dr. Shurtleff's New Seedlings, Painter's Seedling, Howard, Richardson's Seedlings, Clapp's New Seedlings, and Hebe, are spoken of as valuable.

Reeder's Seedling. — Specimens of this new pear were sent us last fall by Dr. Henry Reeder of Varick, Seneca County, N.Y.; and, judging from the fruit, we should think it of superior quality. Mr. Reeder writes that the tree is about twelve years old, and was raised from the seed of Winter Nelis; which tree grew near a Seckel, and is, no doubt, a cross of the two varieties. Tree healthy and

vigorous, rather spreading in form, and an excellent bearer ; fruit small to medium size, obovate, truncate ; skin yellow, netted and patched with light russet nearly over the whole surface ; flesh fine, juicy, melting, somewhat buttery, very sugary, sufficiently vinous, perfumed with musk, and slightly aromatic ; quality best. Ripe November.

Rutter. — An excellent late variety, raised from seed of Van Mons Leon le Clerc by John Rutter of West Chester, Chester County, Penn. Tree a vigorous grower, an early and an abundant bearer ; fruit medium size, obovate, obtuse, pyriform, angular ; skin rough, greenish-yellow, often considerably sprinkled and netted with russet ; flesh white, not very fine in texture, sufficiently juicy and melting, with a rich, sweet, vinous flavor, slightly aromatic ; quality very good. Ripe October and first of November.

Ellis. — A new pear, highly prized where known, and was raised by Mrs. Annie Ellis of New Bedford, Mass., from seed of the Seckel. Tree a thrifty grower, very hardy, and an abundant bearer ; fruit medium or rather large, obovate, pyriform, truncate ; skin greenish-yellow, considerably patched and netted with russet, and sometimes a shade of crimson in the sun ; flesh yellowish-white, juicy, melting, with a rich, sweet flavor, slightly vinous, and a little aromatic ; quality very good, or best. Ripe October.

Bronx. — Specimens received from Prof. George Thurber of New York, who writes us that it was raised by James R. Swain of Bronxville, Westchester County, N.Y., about the year 1850. An upright grower, inclined to pyramidal ; an early, regular, and abundant bearer. Fruit medium size, obovate, pyriform ; skin greenish-yellow, partially netted and patched with russet ; flesh whitish, juicy, melting, with a sweet, slightly-perfumed flavor ; quality very good. Ripe from the first to the middle of September.

PLUMS. — *Foote's Early Orleans.* — Grown from seed of Wilmot's Early Orleans by Asahel Foote of Williamstown, Mass. Tree hardy, much more vigorous than its parent, symmetrical, bears heavy crops, and almost free from rot ; fruit medium size, roundish, inclining to oval ; skin deep black, covered with a blue bloom ; flesh greenish, moderately juicy, with a sweet, pleasant, vinous flavor ; adheres to the pit. Ripe from the first to the middle of August.

RASPBERRIES. — Many new varieties have been on trial ; but the Clarke and Belle de Palluan have given the most general satisfaction. The Clarke is claimed to be hardy ; and, if it prove so, it will add to its value. Duhring, Naomi, and Mrs. Wood, are said to be valuable ; and Charles Arnold of Paris, C.W., has raised some seedlings that are said to be of fine quality and hardy. There are also several new kinds of the Black-cap family that are highly praised, but not fully tested.

BLACKBERRIES. — Kittatinny and Wilson's Early are before the public as superior kinds, and, so far as tested, are worthy of extensive trial ; the Kittatinny being hardier and sweeter in flavor than New Rochelle, and equally as vigorous and productive. It is said that Wilson's Early is ten days earlier than

New Rochelle, but is deficient of pollen, and should be planted in alternate rows, or two rows of Wilson and one of Rochelle or Kittatinny, which makes it very productive. CHARLES DOWNING, *Chairman.*

REPORT OF THE COMMITTEE ON POMOLOGICAL RULES. — 1. No new seedling-fruit shall be entitled to the recommendation of this society until its qualities shall be ascertained by at least five years' experience in more than one locality, and which is not at least equal to any similar variety of the first rank already known; or which, if only of second-rate flavor, is superior in vigor, hardiness, productiveness, or other important quality or characteristics.

2. No new fruit shall be considered as named until it has been accurately described by some person or committee known to be conversant with existing varieties, and such description shall have been published in at least one horticultural or agricultural journal or some pomological work of acknowledged standard character.

3. The originator, or he who first makes known a new variety, shall be entitled to name it; and such name, if suitable, shall be adopted by the writer describing the fruit for the first time. But if the name proposed is inappropriate, or does not come within the rules of nomenclature, the describer shall be at liberty to give a name.

When two persons have named or described a fruit, the name and description first published, if according to the rules, shall have the priority.

4. In giving names to new varieties, all harsh, vulgar, or inelegant names, such as "sheep's-nose" and "hog-pen," should be avoided; and no name should consist of more than two words, excepting only when the originator's name is added. Characteristic names, or those in some way descriptive of the qualities, origin, or habit of fruit or tree, shall be preferred. They may either be of intrinsic properties, as Golden Sweeting, Downer's Late; or of local origin, as Newtown Pippin, Hudson Gage; of the season of ripening, as Early Scarlet, Frost Gage; of the form and color, as Golden Drop, Blue Pearmain; or which commemorates a particular place or person, as Tippecanoe, La Grange, Baldwin; or any other titles which may be significantly applied.

5. The descriptions of new varieties of fruits shall embrace the following particulars: —

1st, An account of their origin.

2d, The fruit, its size, form, and exterior color, texture, and color of the flesh, flavor, and time of ripening; with the addition, on stone-fruits, of the size of the stone, adherence or non-adherence of the flesh, form of the suture, and the hollow at the stem; and in kernel-fruits, of the size of the core and seeds, the length, position, and insertion of the stalk, and form of the eye.

3d, The tree, its marked characters of growth, young and bearing wood, foliage, and blossoms. In peaches, the form of leaf, glands, and size of blossoms; in strawberries, the character of the blossoms, whether staminate or pistillate; in grapes, the form of bunch or berry. P. BARRY, *Chairman.*

IMPORTANCE OF SHELTER. — The following preamble and resolutions were

presented by T. T. Lyon of Michigan, who moved to refer them to the Business Committee, to be brought up at such time as the committee deemed best : —

The subject of shelter to gardens, orchards, and farms, is believed to be one of the most important that presents itself to the consideration of those interested either in horticulture or agriculture ; and, while it is one in which efficient results can only be reached through concerted action by whole communities and even entire States, on few subjects of such moment are we believed to have so little general information.

As a consequence, entire regions of country of large extent are being recklessly denuded of forests ; while, with the least possible regard for this subject, the timber preserves being retained in such form and position as to offer, in most cases, the least possible resistance to prevailing winds.

This is done in ignorance of the fact, that to thus open up a country is at the same time to diminish the amount of its rain-fall, and to hasten the dissipation of heat and moisture by evaporation, thus increasing its liability to both frost and drought ; as a necessary result of which, certain sections of the country, among which may be reckoned that in which I reside, can no longer grow the peach with certainty, while even the apple is becoming less hardy than formerly.

In consideration of the nature of this subject, and of the importance of concerted action, I propose for consideration the following : —

Resolved, That we recommend a general movement by kindred associations, whether horticultural or agricultural, for the dissemination of information on this subject.

Resolved, That, inasmuch as many men receive knowledge more readily when communicated through the pocket, we invoke the aid of legislation in the enactment of such highway-laws as shall encourage the planting of roadside-trees, and secure their preservation when planted ; and also in the exemption from taxation of belts of timber, whether natural or artificial, when grown along the west or north sides of buildings, gardens, orchards, or farms, of sufficient breadth and length to suffice as wind-breaks.

Resolved, That a committee of this body be appointed to prepare an address upon this subject, for general circulation ; and also to secure, as far as possible, concerted action on the part of kindred associations.

Assorting Fruit. — Dr. Claggett of St. Louis said, "I wish I could impress upon fruit-growers the importance and profit of assorting fruit. Fruit will not only bring better prices if assorted, but depreciation of prices will be prevented. Too few shippers assort their fruit : such as do, get from one-third to one-half more for it than those who do not do so. Full one-third of the fruit found in packages had better have been given to the pigs. The market is overrun with packages of inferior fruit. We who are dealers have to assort it. If one-third of the fruit sent to this market were left at home, the other two-thirds would bring more money than the whole does now. It is every man's interest to leave imperfect fruit at home : if he does not, the buyer has to throw fully one-third of it away. If a dealer knows a shipper has a reputation for assorting his fruit,

he can recommend his packages confidently without examination ; but, so far as nine-tenths of the packages received from shippers are concerned, dealers know nothing about them that will warrant them in asserting the excellence of the fruit to a customer until it has been examined. I wish every shipper knew the value to him of a good reputation, — of a reputation that will sell fruit-packages bearing his brand at the highest market-price, without examination. Every fruit-grower should aim to get such a reputation."

PURE WINES: WHAT AND WHERE ARE THEY ? — Your Missouri correspondent in the February number says, " The wine-maker can make a drinkable, even a good wine, in an indifferent season ; but the best is in the hands of Him who has rain and sunshine at his command, and who alone is the giver of all good and perfect gifts." I thank him for this admision, as wine-makers generally are not so willing to put their trust in Him. Nor are they sensible of their own want of strength. They assume that Nature often fails to furnish a perfect must, or grape-juice ; and it is then neither wholesome, nor agreeable to the palate ; and that they simply remedy these imperfections by adding what Nature should have supplied, but failed to do.

The wine-grower with safety and confidence affirms that the Author of Nature, who is the giver of all good and perfect gifts, in his wisdom provided that every country with suitable culture would produce the food best adapted to the wants of its population, and that the climate will bring it to maturity when it is best adapted to promote human health and comfort ; that, in his kindness, he has given us the grape as one of the food-plants of this country, adapted to the wants of its population, as one of the common supports of life ; that he placed all nutritive properties of the grape in the juice of the ripe fruit, giving this juice, when expressed, power to enter into spontaneous vinous fermentation, converting it into pure wine without the loss of any material inherent quality in the grape which can minister to the wants of man ; that this pure wine is a natural liquid food, adapted to the wants of the stomach and other organs, for the growth and support of the body, with sufficient strength and durability to keep through the season, and until the return of another crop ; that any alteration in the natural chemical composition of the juice of the grape, of so small a kind as to be scarcely felt, renders it unfit to answer the ends for which it was designed ; that the art of wine-making, as at present practised, is properly the *art of wine extension*, and has for its object money-making; that great abundance and low prices will alone put a stop to the manipulations of the wine-maker. *J. M. M'Cullough.*

CINCINNATI.

THEORY AND FACT. — THE PEAR. — A celebrated nursery-man, now deceased, once assured a visitor, that, for twenty years to come, it would be impossible to overstock the market with good pears. His prediction has not only been fulfilled, but his visitor regards it, even now, as good for the twenty years which are still to come. What a " good pear " means, it is not likely that all of us will agree upon. Some plant exclusively for domestic consumption, others

exclusively for market. The former choose the delicate varieties: the latter ought to select those hardy, uniform, and abundant bearers which certainly exist among us; but they too frequently adopt the same varieties, which, while yielding generously under garden-culture, so frequently disappoint them when chosen for an extensive orchard. A Virginia paper states that a lady at Norfolk has realized ten thousand dollars from thirty acres of pears, but fails to inform us what varieties were planted, and whether this was the result of one crop, or of twenty. Mr. Quinn, a veteran pomologist, tells us that choice pears command ten to thirty dollars per barrel; and that, "when the trees are ten years old, the receipts should be not less than two hundred dollars per acre; and there will be a steady increase in the returns, under proper management, until the trees are full grown, when the receipts will be at least four hundred dollars per acre, and in many cases much larger." From thirty Duchesse d'Angoulême trees, planted ten feet apart in the rows, and now seventeen years old, he has gathered seven crops in eight years, producing nineteen hundred dollars and fifty-five cents. The seventh crop produced seven hundred and five dollars; being ninety-four bushels, or twenty-three dollars and fifty cents per tree. These trees were originally dwarfs; but Mr. Quinn is quite confident they have changed to standards. The crops averaged two hundred and seventy-one dollars and fifty cents per annum for seven years, or say nine dollars per tree annually.

It may be that few persons could have realized greater results than the accomplished cultivator referred to, when planting the most reliable description of dwarfs. Yet, even with this very moderate return, Mr. Quinn avers that pear-culture can "be made a safe investment for capital;" and "that the inducements now offered for growing pears for market are greater than they were ten years ago, from the fact that the demand is still greater than the supply, and the prices average higher now than then." But why be content with a variety that averages only nine dollars per annum? Mr. Quinn declares, that after fourteen years' experience with pears, and with over a hundred varieties, planted on well-prepared soils, he has come to the conclusion, contrary to his former views, that, "with a single exception, the culture of the dwarf in the orchard or garden is a failure;" and, "as fact after fact presented itself, I was slow to accept them as conclusive, until it became so apparent, that to hold out any longer would be obstinacy." This is but one of the experiences of many cultivators. These experiences are full of contradictions; one succeeding, as with grapes, another only half successful, a third failing utterly. With some, the soil is blamed; and with others, disease of various kinds is alleged to be the cause. More discouraging than all, there are conflicting opinions as to soil, and no certain remedies against disease. Who shall decide between these endless discrepancies, or who supply the curative that pomologists so ardently desire?

There are multitudes of counsellors, but not sufficient wisdom. I am but an amateur, reading much, practising a little, but quietly observing and noting what my neighbors are doing. I learn something from all these unobtrusive occupations; and this learning sometimes resolves itself into definite theories, starting from a point which few will be disposed to controvert, and ending with demonstrations which it would be presumptuous to deny. Last October, I paid my annual

visit to a certain pear-tree growing in the centre of a forty-acre farm belonging to a neighbor. It is no doubt forty years old, and stands in a pasture-field which is very rarely ploughed. No care has been bestowed upon it, no trimming, no manuring; but successive owners have left it wholly to itself, except when finding it ready to yield up its generous annual crop of fruit. No one knows any other name for it than that of "preserving-pear." Yet this neglected tree ripens, with unfailing regularity, a crop which rarely sells for less than forty dollars. The fruit is large, and beautifully shaped; seldom imperfect; exceedingly hard; not suitable for eating, at least in autumn, but in high repute for preserving. The great markets would absorb the product of thousands of similar trees without being overstocked. My theory is, that we should plant more of this description; standards which, under the most adverse circumstances, and after nearly half a century's trial, have never failed to bear abundantly. I know of other ancient, solitary trees on other farms, which bear with the same profuse regularity. One crop from only seven such would produce more money than the average of the thirty trees referred to; or an annual gain, per tree, of over three hundred per cent. It is possible that this preserving-pear may be longer coming into bearing than a dwarf; but how superior would be the investment! and how permanent! What richer legacy could the owner of a hundred acres provide for a family of children than an orchard of these old native standards for each? Of what, in such a case, would avail the long waiting for the first fruiting, even if such waiting were actually required? The children would experience no impatience; but the inheritance would come to them in all its rich productiveness. It is we, the fathers, who are unwilling to wait. My theory will doubtless be considered too slow for this fast generation; but it embodies the three crowning merits of safety, certainty, and permanency.

Coming back to modern pear-culture, Mr. Quinn says, "It is folly to suppose that every person who plants an orchard of pear-trees succeeds. On the contrary, as far as my personal observation has extended, there has been more money lost than made; for I could enumerate five persons who have utterly failed to every one who has made pear-culture profitable." He tells us why these failures occur, — the want of preparation of the soil, the planting of varieties unsuited to soil and climate, and the prevailing idea that a fruit-tree once set in its place "can take care of itself without any further expense or trouble to its owner." Another cause is the planting of too many varieties. In his own case, he would now be several thousand dollars better off had he confined his list to five good varieties instead of cultivating fifty. In another instance, the proprietor of fifteen hundred trees informed him that it would have made a difference of three thousand dollars in ten years. Mr. J. C. Thompson indorses this limitation. His experience has fully satisfied him "that we must come down, and keep down, to a few sorts, and those only of the very best kinds for family use; for whatever is best for family use is surely best for market."

So much for one distinguished authority; and now for another, — Mr. Thomas Meehan, of "The Gardener's Monthly." This gentleman, referring to the fire-blight, avers it to be "the result of a microscopic fungus, and that it is not necessary that the tree should be previously diseased in order that the fungus

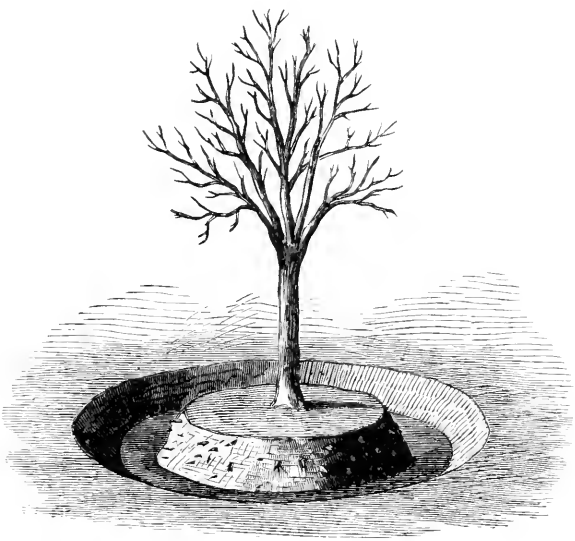
should grow as it does." He thinks "the contradictory results of various theories would alone be sufficient to destroy them;" and that all arguments deduced from rainfall, drought, wet soil, dry soil, and miasmi, fall to the ground for precisely the same reason. "Varieties, standards or dwarfs, modes of propagation, and all that class of arguments, the contradictory evidence kills of itself." Mr. Meehan asserts that the fire-blight is the result of the growth of a parasitic fungus, the seeds of which float in the atmosphere, attaching themselves to the bark, whether diseased or not, germinate, and, by pushing their thready roots through the tissue, destroy it; going round the circumference of the place for a few inches wide, girdling the branch in fact, and thus killing it. All other theories than this upset each other. Assuming this to be correct, the enemy must be attacked at his first approach, and stopped by cutting away and burning the infected parts before the spores have had time to propagate the species. Each cultivator must do this for himself, and thus prevent the disease from spreading to his neighbor.

While thus reproducing Mr. Meehan's theory, I am too much of a novice in pomology either to affirm or deny it. His great experience gives weight to every suggestion he may offer. Still, one may with propriety entertain a different theory. He finds the enemy floating in the atmosphere; but why not also look for it in the earth, at the root of the tree? I have long entertained the idea that there is a specific nutriment for every plant, and that we should labor to discover it. It is measurably so in the animal kingdom; and the curative art is, to great extent, a system of specifics. Every plant must have its appropriate food, as every sickness has its appropriate medicine. The soil wherein it grows cannot possess an unlimited supply. Hence, in time, the plant will instinctively take up all that may be within its reach; the soil becomes exhausted; the plant declines in various ways, as a consequence; and, in the case of the pear, this decline is manifested in various forms,—blight, cracking of the fruit, and failure to bear. Old standards become worthless from sheer exhaustion of the soil. An old Seckel produces fruit of barely half the original size, when generous manuring would prevent all declension.

This theory of looking at the root for the cause of declension has in many cases been found to be correct. Some years ago, the amateur owner of many pear-trees, among them a fine Virgalieu which had produced excellent crops, was about to cut it down and cast it out, as it then yielded only blighted, cracked, and miserable specimens of fruit. He considered the variety as worn out, and, in his soil, worthless. But the late Mr. Downing cautioned him about being too hasty, and suggested certain fertilizers as worth trying before he exterminated his trees. Mr. Downing told him he believed they had exhausted the proper elements from the soil, and that, instead of being cut down, they should be renovated. Two Virgalieu trees, twenty to thirty feet high, were accordingly operated on in the fall. The rough outer bark was scraped off, and painted with soft-soap; and the head and branches were shortened in one-third. A trench four feet wide and twenty inches deep was then dug all round the tree, leaving an inside ball, or circle, six feet across; all the roots beyond it being cut off. The soil from the trench was carted away; and new soil from a pasture-field, where

the sod had not been broken up, was substituted. Then each tree received two bushels of blacksmith's cinders, two of well-broken charcoal, and two pounds of pulverized potash, all which were mingled with the fresh soil as it was put in. The entire contents of the trench were thoroughly intermixed.

The next summer, the trees made a vigorous and luxuriant growth, forming new and handsome heads. The second season, they blossomed moderately; and the fruit was large, fair, and smooth. The third year, seven bushels of superb fruit were gathered from the two trees. The owner declares himself convinced, by this result, that pear-trees in his neighborhood had "failed from a want of



proper sustenance in the soil." This experiment was fully described in "The Horticulturist" for 1846. An illustrative drawing of the trench will be found above.

Nothing could be more conclusive than this. The roots, having consumed all appropriate nutriment in the soil, required a fresh supply. No sooner had it been deposited within their reach, than they put forth a plexus of new fibres to feed upon it; and the renovating process going on below was immediately manifested overhead. The restoration to perfect health was rapid and complete. Thus my theory, when reduced to practice, was proved to be sound. Who will now take pains to repeat the test? *Verbena.*

Downing's Seedling Gooseberry. — It is a large, greenish-white berry, productive, and of fair quality. It is a more upright grower than Cluster or Houghton. Its habit and appearance in growth is more like the English berry. I have another berry, bearing the same name, which is more sprawling in habit, red, of good flavor, but not so desirable as the real Downing.

A CONTINUOUS SUPPLY OF CUCUMBERS. — Much has been said, and well said, about the cultivation of cucumbers, their diseases, and their failures in the winter-time. It is no easy matter, under many circumstances, even with good appliances, to secure a regular supply at all seasons, especially in winter. The plants require careful tending at all times; and I have known many failures, even in spring and summer, when the means were limited.

I do not for a moment suppose that there is any thing novel in what I am now advancing about the cultivation of cucumbers in winter: but it may be useful to describe a method founded on long practice, and which has attained the object aimed at, — namely, a supply all the year round; though I have not, like many of my more-favored brethren, a house specially devoted to the cultivation of cucumbers. I have a fruiting pine-stove heated on the Hamiltonian system; hot water, flowing in cemented tanks, or gutters, covered over with blue slates, supplying the bottom-heat. The house is a lean-to, ventilated, back and front, with sliding doors; but there is no ventilation at the top. Along the back of the house is a path; and a tank, or gutter, runs parallel with it, to give off a certain amount of top-heat: over this tank is constructed a trough, or box; and a space of about nine inches is left from the top of the tank to the bottom of the trough, or box, which forms the future cucumber-bed. This receives bottom-heat from the tank, as well as from the side of the bed in which the pines are planted out. The place for the bed is about twenty inches deep, and the bottom is pierced with holes to permit the water to escape: these are covered with large hollow crocks, and the bottom with four inches deep of broken bricks or other rough material as drainage, a proper amount of which is very essential for the future well-doing of the plants. Above the drainage is placed about an inch of rough charcoal, and over it moss, or some other covering.

We are situated near a river; and the soil being of a heavy, retentive nature, we are obliged to add to it many ingredients to keep it porous. For cucumbers, I form the compost as follows: I procure the best turfy loam which is to be had, and lay it up in a stack for some time previous to use; and to each bushel of this, roughly broken, I add half a peck of good sound leaf-mould, one peck of thoroughly decomposed dung, half a peck of charcoal-dust, a sprinkling of bone-dust, a little soot, and a small quantity of river-sand to keep the mass open. The whole being well incorporated together, I have a porous compost through which the water passes quickly. This, in my opinion, is one of the first steps to success.

The place and soil for the bed being ready, we put in an upright rod, and fasten it to the rafter to tie the plants to as they advance in growth. We allow the plants a certain space to each by placing a partition between them, so that, in case of need, a plant can be removed without interfering with its neighbor. This being done, the soil is put into as many spaces as are required, placing the roughest portion of the compost at the bottom, and making the soil about ten inches deep, so as to leave room for top-dressing with rich compost when the plants require it. The bed is allowed to remain a few days before planting, in order to acquire a genial temperature; and, when this is the case, the plants, which have been previously prepared, are planted about the end of September.

After planting, a gentle watering with tepid water is given, using a little weak liquid manure-water as occasion may require. As they advance in growth, they are secured to the upright rods until they reach the rafters, and are then trained over the pathway to rods fastened to the rafters, and extending the whole length of the house; forming, when in fruit, a sight well worth seeing.

By the above mode of culture, and other means, I secure a supply of cucumbers throughout the year, without disease, or those unsightly, club-like fruit so often complained of. When other cucumber-plants come into bearing in spring, those grown for winter production are taken away, and renewed in the autumn, as I prefer young plants; so that I have no experience to relate about stems as thick as walking-sticks, or lasting for years. I have practised this system for years, and it has answered the purpose intended; and I shall be happy if the facts stated prove of service even to one individual. — *Eng. Jour. of Hort.*

Treatment of Peach and Nectarine Trees. — Plant, if possible, trees one-year-trained from the nursery, unless you like two-year trees best. After planting, put some rotten manure over the roots, with soil, and water it in. I like to plant in October or November, and I let the trees grow till May before I cut them back. Should there be any shoot absolutely useless, I cut it out, but no more; then nail, as soon as of sufficient length, as much wood as will form a good head. I usually let the wood grow all it can in the spring till the following season; that is, I never cut a shoot from the trees till I prune them, say in the middle of May: then I go over the trees and cut out the useless wood, disbud the wood left for another year, take off the embryo fruit where it is too thick, and then nail in properly. By this management, I never miss having a crop of fruit. The reasons I assign for this treatment are, that, by having every piece of wood with its leading shoot, the proper nourishment of the tree never ceases to keep properly distributed, you obtain a crop without any covering to your trees, and you avoid all standing in the cold, and hitting your fingers instead of the nails in winter-pruning. I have had a crop of fruit for the last twenty years under the above mode of managing the trees. — *Eng. Jour. Horticulture.*

Currant-Culture. — Currant-culture is as profitable as the culture of any of the small fruits. The currant is a most healthful fruit, and comes into market when it is most needed. If properly managed, people have no idea of its lusciousness. I get fifteen cents per pound for my crop. They weigh one and a half pounds to the quart. The merits of this fruit had been strangely overlooked. It comes at a season when the system seemed to require the acid peculiar to them. They were healthful and exhilarating. Those who had only been accustomed to our common varieties as commonly grown had no conception of the beauty of the Cherry, or the quality of the Versaillaise, White Grape, or Imperial Yellow, when well grown. It is one of our most profitable fruits.

Thinning the Leaves of Vines. — Grapes cannot be grown long to great perfection if the leaves are greatly reduced in number. If plants have to be grown under vines during summer, light should be admitted to them, not by denuding the vines of foliage, but by having a less number of vines in the house. — *English Journal of Horticulture.*

NEW GRAPES. — D. W. Bradle, St. Catherine's, Ontario, writes of new grapes as follows : —

Laura Beverly. — This is a new black grape, much resembling the Hartford Prolific in bunch, berry, and time of ripening, but of better quality. It was raised by the Rev. Alexander Dixon of Port Dalhousie, in this county, and has never received any protection or special treatment. It has the merit of being perfectly hardy, a great bearer, ripening early, of good quality, free from pulp, and hanging perfectly on the bunch. It is worth a trial.

Arnold's Hybrids. — These were raised by Mr. Charles Arnold of Paris, county of Brant ; some of them from seed of the Clinton, fertilized with the Black St. Peter's ; and others from seed of a wild frost-grape, fertilized with Black Hamburg. They are a great acquisition ; and I do not hesitate to say that I expect they will prove of more value than any of the Rogers's Hybrids. I visited Mr. Arnold's vineyard this season, where I carefully examined the plants in bearing, and came away rejoicing that Canada could boast of such an intelligent and enthusiastic horticulturist, who had produced new varieties of grapes so decidedly in advance of many others so vauntingly pressed upon public attention. It is to be hoped, that, when Mr. Arnold sends out these grapes, he will give them names, and not send them out designated by numbers, — a practice that has given rise to endless confusion and mistake. The great wisdom shown by him in selecting for the seed-bearing parent the hardy Vitis Cordifolia, or Frost Grape, which is free from the tough pulp so persistently present in the Vitis Labrusca, or Fox Grape, is apparent in the fine, melting character of the fruit of these seedlings. The autumn frosts do not injure the grapes ; while the wood ripens early, and almost to the very tip, enduring the rigor of our winters without any protection. Only one of Mr. Arnold's seedlings is white : the others are all black, and will, I hope, be all extensively tried.

Mr. William Read of Port Dalhousie, in the county of Lincoln, has been taking great pains in hybridizing grapes, and has produced some very promising sorts. One of his white grapes, which he has named Silver Cluster, is far superior in this climate to Allen's Hybrid, Rebecca, or any other white grape yet offered to the public. His Black Jack is also a promising grape, free from pulp, and has a very agreeable flavor. Many other seedlings are undergoing trial on his grounds. Of course, the ultimate value of all these new grapes remains to be ascertained by planting and ripening the fruit in different soils, exposures, and climates ; but that some of them will prove of great value, I have no doubt. — *Am. Pom. Soc.*

EXTENDED TREE-PLANTING. — John Edgarton, Coal Creek, Io., writes, "There is great enthusiasm in tree-planting. Orchards are all around me of five hundred to a thousand trees ; and one man has already purchased ten thousand trees for planting in spring. Of these, three thousand are the Willow-twig Apple. That variety, with the Jonathan, Rawles's Janet, Ben Davis, Dominie, and Winesap, are among if not our best and most profitable sorts." — *Am. Pom. Soc.*

THE Editors of "The American Journal of Horticulture" cordially invite all interested in horticulture and pomology, in its various branches, to send questions upon any subject upon which information may be desired. Our corps of correspondents is very large, and among them may be found those fully competent to reply to any ordinary subject in the practice of horticulture. Any questions which may be more difficult to answer will be duly noticed, and the respective subjects fully investigated. Our aim is to give the most trustworthy information on all subjects which can be of interest to 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.

BEGINNER. — I set out a good many raspberry-bushes last spring, and most of them lived, but are not throwing up new shoots. If they fail to do this, what will become of them? — You should have cut the canes down to four or six inches when you set them; then they would have thrown up new canes for next year. Some prefer to get a little fruit the first year, and thus often lose their plants, as they usually die if they make no new canes for the next year.

H. C. W., Winsted, Conn., writes us, "I have some choice roses which mildew badly, the leaves assuming a wrinkled appearance. I cannot lay it to a damp atmosphere, as I have been particular in that respect. I have made the soil very rich with superphosphate of lime; and have thought, perhaps that is the cause." — Mildew is not always a result of dampness. It occurs sometimes in the dryest air. Some roses, including many of the choicest, are peculiarly liable to it. Many of the Teas and Noisettes, some of the Bourbons, and some of the best Perpetuals, including the Giant of Battles and its kindred, are of the number. The superphosphate of lime has probably nothing to do with the mildew of your roses. The best thing you can do is to powder them over with flour of sulphur.

Ilex. — Can I successfully transplant large holly-bushes? If so, what is the best season of the year? — You cannot count upon success in removing large hollies. It is possible that one out of every ten could be made to live if removed with a ball of earth towards spring. The best season of the year to transplant hollies is the spring; and, in order to insure success, small plants should be used, and those from the nursery.

X. X. — Many of the pear-scions that I set last spring have failed. Can you tell me the reason why? — We have experienced the same difficulty; and the only reason we can assign is, that last year was a very wet one, and the new growth did not ripen well; and the wood was softer than usual when winter came on, and hence was injured. The scions taken from some trees have failed utterly, while those from more hardy trees have lived. Among the sorts injured the most with us are the Wellington, Beurré Bosc, and Doyenné du Comice. Pear-trees, when transplanted, have failed just as the scions have; for they seemed to have been so enfeebled by the winter as not to be able to take hold readily in their new position.

L. — I have planted quite a number of rather large-sized pear-trees this spring; and though the work was done in the very best manner, and the season has been favorable, yet they have a very sickly look. On some, the few leaves that made their appearance have dried up. What is the cause? What can I do to benefit them? — We have noticed some trees that have been transplanted the past spring that did not look very well. The only reason we can give is, that last season was a very wet one in all the Eastern States, and the trees as well as the grape-vines that have suffered so severely the past winter made large growth of soft wood, and they were not prepared to withstand the winter. Being injured, they have not the vigor and strength such trees usually have: and some may fail to live when transplanted that would have done well if they had been left undisturbed; while there may be some among the number that would have died at any rate, as several bearing-trees did in our orchard. The best thing that can be done is, if they are large, first to stake them, or in some way to fasten them so that the wind will not sway them about; next, to mulch them six or eight inches deep with hay, leaves, moss, or any thing of like nature, that will keep the moisture in the ground about the tree from evaporating.

A. K. M., Lowell, Mass. — I have in my garden a tree of Downing's Everbearing Mulberry, that has grown very well, and given me some fruit. I have from time to time cut off limbs, and, I find, very much to the injury of the tree; for the wounds, instead of healing over, have enlarged, and threaten to be the ruin of the tree. Is this trouble peculiar to my tree? What is the remedy? — It is not peculiar to your tree; for we have seen trees that have suffered in the same way. It will be a good plan to fill up or cover over the wound with a mixture of clay and cow-manure, and cover the whole with bandages to keep out the weather. It is better not to prune this variety of mulberry much. And never cut off large limbs: we have known them to be ruined from such treatment. What say those of our readers who have had experience?

W. K. D., West Acton. — Will you please inform me how to grow dandelions for early-spring use? Is the seed sown in autumn, and managed like spinach? or do the plants need to be placed in cold frames? — The seed may be sown in drills in the garden or field, precisely like spinach, late in summer or quite early in the fall, and covered up in winter. For very early use, sow soon; and in the fall transplant into cold frames, and towards spring put on the glass. This crop is quite easily managed.

BERGEN. — I have several Urbaniste pear-trees that are now twelve or fifteen years old, and blossom every year, but give me no fruit. What is the cause of and cure for such a trouble? — This variety is late coming into bearing, as we have before remarked. Bending down the branches, pinching in the new shoots in midsummer, or root-pruning, will be likely to induce fruit-bearing. Better let them grow: they will bear all the more by and by.

IN answer to inquiries about hardiness of *Cupressus Lawsoniana*, a correspondent from Vineland, N. J., writes, —

"I see some inquiries respecting the hardiness of *Cupressus Lawsoniana*. I wish to inform you that my stock of young plants is partly injured with the winter; but the *Thujopsis borealis* appears to be more hardy, and, I think, will make a very fine evergreen. I have a fine stock of young plants in a very exposed situation, but they are very little injured; but the *Cupressus* appears more tender with me."

This is the general testimony; although in New England the Thujopsis was badly cut up. The cypress can never become popular, and be used for general planting, when it is liable to be so injured by the winter; and, after last winter's experience, we must reluctantly put it down as precariously hardy.

W. C. H., Machias, Me. — The ivy-leaves are covered with a minute fungus. Dusting with sulphur might possibly destroy it; but, if all the leaves are like those sent, you had better get a new plant.

I. G. H., Winchester, Ill. — Cement for aquarium. If for glazing, use white or red lead; if for rock-work, "hydraulic" or "Roman" cement.

A. L. S., Springdale, Utah. — 1. Apples can be grown from cuttings; but it is not a desirable mode of propagation. The best way is to raise stocks from seed, and graft good varieties. The Paradise stock is perfectly hardy.

2. The "Sicilian Nut," so called, is only a species of filbert. It is strong growing, and bears well; but we cannot say we esteem it of any value, except for curiosity. The fruit is sweet and good, and keeps well, but is no better than the common filberts of the stores; and it would be foolish to attempt to grow it, except, perhaps, for home-use.

3. Norway Spruce will grow in any soil of tolerable richness, but would not do well in pure sand. Their growth varies very much according to the soil: in a rich, moderately moist soil, they will grow three feet in a season; but in poor, dry situations, often not three inches. For the first three or four years, from seed they make but little show, but after that grow very rapidly.

4. Plant your tube-roses in good garden-soil, but not in stiff clay. With you they should flower out of doors, without forcing. Our September number will have an elaborate cultural article on this flower.

5. Clematis and Wistaria can both be grown from seed; and both need a rich, deep, rather moist loam. The former grows from cuttings also: the latter is best propagated by layers.

6. The best six tender grapes are Black Hamburg, Chasselas Musque, Golden Hamburg, Bowood Muscat, White Frontignan, and Cannon-hall Muscat. These for an amateur: for market, there is nothing so good as Black Hamburg.

7. Stew mushrooms in butter, or broil them.

8. Most of the new varieties of tomato are not as good as the old. Those you have are good enough: better rest satisfied.

J. C., Havana, Ill. — Your running-vine is *Calystegia pubescens*. All who grow it find it has an "astonishing vitality;" but, if kept within bounds, it is very pretty. Your other plant is a Lamium: we should hardly think it worth growing.

I. S. McC., Galesburg, Ill. — If you can obtain evergreen-boughs, stick them into the ground among the rhododendrons just before the ground freezes up: you cannot have better protection than this. Any thing, however, that will keep off the rays of the winter's sun, and break the force of the wind, but at the same time give circulation of air, will answer your purpose.

DOWN AMONG THE JERSEYS. — No. I.

Perhaps a few sketches of our experiences who are at present sojourning in this foreign region might not be unwelcome to some of your readers who are still in ignorance of the kinds of farming so successfully practised in different parts of the State. Jersey sand has long been a by-word; and, if I venture to assert that this same sand is the very best soil for certain sorts of vegetables, it may bring a smile to the faces of the incredulous. But "seeing is believing," as you know; and I shall, in these sketches, testify only to what I have seen.

Along the western border of the State, and for a few miles back from the Delaware, the land is in a high state of cultivation. The farms are gardens indeed; and, in the summer months, the air is fragrant with the perfume of fruit, clover-blossoms, or new-mown hay; while throngs of pickers are in the fields, gathering in the luscious products for the market.

Twenty miles farther towards the centre of the State, the appearance of the country is different; and large grazing and grain farms meet the eye. But along the eastern border, from the seaboard to the centre, are to be

found thousands of acres as yet untouched by the plough, which are, perhaps, as fertile as any in the State. A few years ago, New Jersey contained over two million acres of unimproved land, most of which could have been, or may even now be, bought for from one to five dollars per acre. That was because there were few branch-railroads, and the prices obtained would not warrant the expense of carting their crops to remote stations on the Camden and Amboy Railroad. The same proverbially heavy sand made this carting with loaded teams quite a serious drawback to any successful market-farming. Large tracts of land lay idle, either in sandy barrens, or covered for many miles with pine-forests and "scrub" oaks as they are called, — doubtless a perversion of "*shrub*," as they never attain to the dignity of trees.

Now and then occurs a huge fire in these pines, lighted, perhaps, by some careless cabin-family; and, in the dry weather of midsummer, it often burns for weeks, destroying miles of valuable timber, and filling the atmosphere with dense smoke, while it imperils the lives of hundreds of poor squatters and charcoal-burners who have there pitched their rude cabins.

When the fire has sped its course for some time without prospect of abatement, the inhabitants kindle a counter-flame at some point in advance of the fire. Then, by a strange provision of Nature which philosophers can doubtless explain, the new fire will burn to meet the other; and, leaving vacancy behind it, the space thus created will, as a matter of course, soon end the destruction.

Any one who has looked upon these burnt-over regions knows how desolate and black and barren they appear; yet, if revisited next year, they will be green again with the spontaneous growth of the before-mentioned scrub-oaks, which invariably spring up, unplanted, wherever pine-forests have previously been.

But a word in regard to the inhabitants of these pines. As you pass along the sandy roads that intersect them, you will here and there meet with their miserable abodes, — huts, or cabins, consisting of one room, literally on the "ground" floor. They are generally teeming with children of all sizes, often nearly or quite naked, and always the very personifications of filth and wretchedness. As soon as the sound of an approaching vehicle is heard, it is the signal for the inmates to come forth; and thereupon

they swarm out at the door to gaze at the passers with as much eagerness as city children would look at the cavalcade of a menagerie or a military parade.

Near by is the charcoal-pit; and, whenever its contents are ready, the wagons are filled, and a journey of twenty miles or less will bring the owner to some town or city, where he can peddle it out at forty or fifty cents the barrel. Just beside the door is the rude enclosure for the pigs; and as the animals usually run at large in the woods, and find their own living upon the acorns and weeds, they are little expense to their possessors. If their flesh is not as fine in quality as if fattened with corn, it will at least be a satisfying dainty to these savages, who know little of the tastes and fancies of educated palates.

These people also increase their revenue by stealing from the neighboring cranberry-swamps; for this is the region for native cranberries. The swamps, for generations back, have been considered the right and property of this predatory race; and, when purchasers first began to claim control over their own plantations, they were looked upon as common enemies, whose titles were of no importance in comparison with theirs. With them, possession was more than nine points of the law of property; and not until after years of expensive vigilance did the proprietors obtain final control of their crops. The thieves preferred to gather the berries before they had turned at all, rather than risk a total loss by waiting longer: so, while the owners, who generally lived at a distance of several miles, and came occasionally to look after them, rested in quiet anticipation of a full crop in due season, these watchful thieves, the "pine-rats," came beforehand, and gathered the lion's share. To reason or expostulate was vain; for they own no law, and are as perfectly heathen as if they lived in Africa instead of Jersey. An imaginary evil being, known as "Leeds's Devil," is said to be the deity whose influence they dread more than even the law of the land.

But the pioneer cranberry-farmers were not discouraged by these untoward surroundings; and ten years of perseverance and compromise with these people have brought matters into quite a different shape. Many cranberry-bogs, which in their native state were only half-productive, have been replanted, and supplied with the means of irrigation. One of these men, whose bog of nearly a hundred acres produced him last year the gross

amount of five thousand dollars, told me he had paid two thousand dollars of it to these very people as wages for gathering his fruit, which was fully ripened, and of excellent quality. A thousand dollars more were expended in the necessary barrels, and for carting nine miles to the nearest railroad-station; thus leaving him a clear profit of two thousand dollars. This is but one of the many cranberry-plantations in the neighborhood of Pemberton, Burlington County; but, as it has been longer in preparation than some others, it affords a better evidence of what can be done by setting the plants thickly in their native swamps, and then adding the advantages of artificial irrigation. Thus the ravages of the worm may be prevented; and the late spring and early autumn frosts, which are sure to endanger the crop, may be rendered harmless by thus flooding the whole for a brief season.

There are many advantages peculiar to this cranberry-farming. In the first place, the best locations can be obtained — native swamps ready planted — at from two to five dollars per acre, whose value can be increased by additional plants gathered from the neighboring bogs. A year or two will be required to bring it into a really paying state; and, after that, it will need but little attention during three-fourths of the year: the plants take care of themselves, and need no working or manuring. Then, when gathered and assorted, there is no hurry about getting them to market; for they will keep well for half a year, and can be sold whenever the best prices are obtainable. For this reason, remote lands are entirely available for cranberries; while, for perishable fruits, it is of the first importance to be near a station, so as to get them to the cities within a few hours after being gathered. Another advantage is, that while other plantations of strawberries, blackberries, and raspberries, need occasionally to be ploughed under and renewed, the cranberry-bog, once planted, is done for a lifetime. There seems to be no wearing-out, but rather a constant increase in vigor; and the older the plantation, the larger the yield.

The owner of the swamp I have described has spent the largest part of his life in these regions, and been a careful observer; and this is his opinion. He has experimented largely in the business of cranberry-raising; and the hundred acres which he bought ten years ago for five dollars per acre, or five hundred dollars for the whole, are now worth to him fifteen thousand

dollars. Besides this, he carries on ordinary grain-farming on the place where he lives ; for only a small portion of the time is needed at the cranberry-swamp. His work there was done in the years that are past : he has nothing to do now but gather in his crops, and count his profits.

But, as I have long ago discovered, this oft-quoted Jersey sand raises some other good things ; and I mention sweet-potatoes especially. Driving along one day with one of my friends who owned a farm in that same region, where the sand is pure and white, — apparently as barren a soil as could be found, — he alighted with his basket, and, crossing the fence into the potato-patch, scooped out the large yellow potatoes with his hands, and filled his basket in a few minutes, without leaving a mark of soil upon the flesh, so clear and dry was the hot sand where flourished his fine potato-plants. Near by I saw the water-melons and citrons, which likewise did well in the same kind of soil. The hotter the sun, the more juicy the melons, as if the heat drew water from the earth instead of from the clouds ; so that, the dryer the season, the better will always be the crop of melons. Of course, this sandy land I describe had all been well manured and tilled ; but there was no question about its being just the soil for every thing in this line.

If persons who are looking about for a chance for speculation would buy up some of these unemployed acres at their present low value, and put them under cultivation, how soon might they treble or quadruple their investments, especially when, after a few years, the additional railroads now in prospect come into operation, bringing all these interior sections into direct communication with both the great cities ! See what the Camden and Amboy Railroad has done for the western portion of the State, and the Camden and Atlantic, and Cape-May Roads, for the southern ; yet the great eastern and central portions, that border for so many miles on the ocean, are as yet almost without railroad accommodation. The Delaware and Raritan-bay Road, from Camden to Keyport, has done much already for Central New Jersey ; and the new route from Hightstown, a point on the Camden and Amboy Road to Pemberton, in the centre of Burlington County, is one of the first of those inland extensions from the main highway, which will, before many years, intersect every county, and increase the value of every acre of Jersey soil.

STRAWBERRIES IN 1868.

I OFFER a word or two in regard to varieties of strawberries I have fruited myself, or tested in my friends' gardens, this season. Wet and cold weather in May retarded the ripening of the crop, and, I think, affected the flavor of many kinds. All the very large berries I have examined this year have been even more deficient in high flavor than the large kinds usually are; the fruit of the Agriculturist, for example, being nearly worthless.

On the other hand, the wet weather swelled some of the foreign berries to an enormous size, to the gratification of many an amateur who has longed for berries that should weigh twelve or fourteen to the pound.

I have noticed this year an interesting fact illustrating the ease with which a strong-growing strawberry will conquer a weaker variety, and kill it out.

I have a bed of about twelve rows of plants, the outside rows being Downer's Prolific and French's Early; and these two kinds have in two years usurped the greater part of the bed, entirely killing out an intermediate row of Triomphe de Gand, and half smothering rows of Jenny Lind and Boston Pine.

In the struggle for existence, Downer's Prolific will be pretty sure to get the upper hand.

Agriculturist. — The reputation of this famous berry seems to have gone up like a rocket, and come down like the stick. Every one in this vicinity, so far I can learn, is discarding it. My vines have borne a small crop of wretched fruit; even the one-year-old beds giving much poorer fruit than in 1866 or 1867.

Alpine. — A bed of Red Alpines, raised from seed two years ago, has come into tolerable bearing this season. I think that they hardly pay for the ground they occupy.

Bijou. — A small crop of very fair medium to large berries, about as good as usual.

Brooklyn Scarlet. — This, which I used to think one of the best flavored and handsomest berries grown, has shown a falling-off on three-year-old

plants this season, the fruit being watery and insipid. A two-year-old bed, on very light, sandy soil, is wholly run out.

Downer's Prolific. — This variety maintains its reputation. Vigorous, hardy, and enormously productive. The fruit is somewhat soft, and a little acid; otherwise good.

Exposition à Chalons. — A row of this kind bore a few large, queer-tasting berries. This is strictly what the catalogues call "an amateur's berry."

French's Early. — This is a little earlier, but not much better, than Downer's Prolific. Young plants bear very good-sized berries.

Jucunda. — I had a few Jucundas on plants set this spring; and for color and firmness, as well as large size, they were every way admirable. Various cultivators in this vicinity have the Jucunda in fruit; and its great firmness, which enables it to be sent to a distant market, will make it very popular. As to flavor, there will probably always be a division of opinion; and I cannot yet make up my mind how good a berry the Jucunda is, but must wait till I have better opportunities of testing it.

Lennig's White. — A bed of Lennig's White (plants one and two years old), in a moist, moderately rich soil, has given me this year an abundant yield of delicious fruit. In fact, hardly any berry exceeds a ripe Lennig in high flavor and juiciness.

Orb. — A little bed of this variety, in its third year, did not, the present season, give three berries. Plants a year old generally bear a very moderate crop, but good enough, I think, to warrant an amateur in keeping a small stock of plants.

Scarlet Magnate. — This, too, has run out. My bed, planted in 1865, bore only a few small berries. The first year, the crop was very fine and handsome. The fruit is sweet, rich, and good.

Rippowam. — I had, in one corner of my garden, half a dozen plants in bearing, and am glad I did not have more. The foliage is much like that of Rivers's Eliza; but I did not have fruit enough to settle the question of its identity.

I have had in fruit this year a number of seedlings from the Agriculturist, Lucida Perfecta, and La Constante, most of them worthless; but some of considerable merit, so far as can be decided by a single year's trial.

Those from the Lucida Perfecta were entirely worthless; though the plants

were showy, vigorous, and handsome. Those from the Agriculturist were astonishingly exact reproductions of the parent plant, two of them only being good enough to save ; and the seedlings that pleased me most were raised from a large and beautiful strawberry which I bought three years ago as the Quinquefolia. I cannot find any nursery-man who now has plants of this name ; and I shall be greatly obliged to any one who has the genuine Quinquefolia if he will send me his catalogue.

The seedlings I mentioned from the so-called Quinquefolia are very handsome, large, rich, and sweet. I have preserved two of them ; and another year, I hope, will prove them to be of some value.

Still it must not be forgotten that one's own swans are very apt to be geese, after all.

The finest seedling, however, and perhaps I may say the finest strawberry, I have ever seen, is Mr. Marshall P. Wilder's No. 13, — a cross between the Hovey and La Constante. Starting with the two best berries we had, Mr. Wilder has produced a strawberry of almost unapproachable excellence, whether we regard its delightful perfume and flavor, or the immense size of the fruit.

The plants are vigorous, and extremely productive.

J. M. Merrick, Jun.

NEW GRAPES.

I HAVE nothing now to speak of as regards fruit in New Jersey, except to describe two new grapes of promise, under the names of Conqueror and Challenge. They were grown from seed by Rev. Acher Moore, and supposed to be a cross between Concord and Royal Muscadine. The Conqueror has long, loose-shouldered bunches ; berries medium, glossy-black, with a bloom ; flesh slightly pulpy, juicy, sweet. The Challenge has short, compact bunches, shouldered ; large, round berries, pale red, with flesh slightly pulpy, juicy, very sweet. — *William E. Bassett, Am. Pom. Soc.*

CULTURE OF THE EGG-PLANT.

HAVING paid some attention to the cultivation of these "shy bearers," and been well rewarded for my care, I have thought that the details of my experience might interest some whose horticultural studies have just commenced.

Last year, having removed to the country late in the spring, I had to procure my plants from others. Six noble ones were given to me by a friend, and a score were purchased from a dealer. Bringing home the latter on the 26th of May in flower-pots, I found them an inch and a half in height, and stout as a first-class grape-vine. They were placed in a cold frame, under the shelter of a friendly board, and, by the help of frequent waterings, were kept alive. Soon they became more vigorous; and a sprinkling of bone-dust over the earth around them, and the hilling-up of the earth as they could bear it, helped them no little. By the 6th of June, they were ready for setting out. Soon their growth was perceptible. Fertilizers were then freely applied; the ground was worked over almost daily with a rake. No weeds found a home among them. Waterings were continued. Blossoms, and then young fruit, appeared. Frequently as many as forty-six specimens of the fruit could be seen at one time on the plants; and, until frost came, they continued to form, ripen, and be eaten. Most of them were of the long purple class; the rest, of the New-York Improved. The fruit on the former was smaller, but rather better, and certainly more easily cooked, than the latter. Still the magnitude and beauty of the New-York made them general favorites.

This season, my business has been with the plants themselves, not their fruit. Desiring to have an ample supply, I prepared a box four feet by eighteen inches in size; and after putting in small pebbles for drainage, and six or eight inches of rich, mellow soil, I placed it in the south window of my kitchen, and on the 5th of February sowed the egg-plant-seed in drills two inches apart. At night, the box was placed over a flue from the furnace to secure the benefit of the heated air. In due time, the shoots appeared thickly in the box, and, as necessity required, were thinned out. As they grew, I removed some of the best to the grapery, where they languished and

died. Eighteen were placed in a nice box with pasteboard partitions, and set where they could grow finely: but these, too, soon ran their race; and, on the 18th of April, all the removed plants were dead. The remaining tenants of the box were now few, but healthy; and I was very careful, at last, not to disturb them. Finally, on the 1st of May, when they had acquired six leaves and a vigorous appearance, they were placed in small flower-pots, and transferred to a spent hot-bed.

Having more seed, when the hot-bed was made on the 9th of March, I caused one row to be sown, and treated the plants like the tomatoes and peppers around them until the 1st of May, when these plants also were set in the spent hot-bed, four inches apart, but not in flower-pots. Care was taken not to force on the plants too rapidly, but to gradually harden them by daily exposure to the air. After the 25th of May, the sash was removed entirely, night and day, except in very bad weather; and, on the 2d of June, I set out in the open ground all the plants that remained (about twenty-five), at least half of which were of those started in the hot-bed. In regard to size, the difference was marked: the plants from the kitchen-box were only about three inches high; while those from the hot-bed were six or eight, furnished with spines strong and stout. All, however, are better plants than those set out last year; and I anticipate a satisfactory yield of fruit. I used a combination of bone-flour and Pacific guano freely in the hot-bed; and purpose to use it still, or liquid manures in substitutution, while the plants are growing.

Let me now, as the result of my experiments, suggest what I consider the best mode of treatment for the egg-plant, which grows readily enough if its peculiarities are attended to. Its early roots form very slowly; and an injury to them is much more serious than to most other plants. Removal before the plant has established its roots, and fairly started into vigorous life, is death. A deep, rich, thoroughly-pulverized soil, constantly kept stirred, is essential to its productiveness. Thoroughly understood, and its wants supplied, it grows and fruits with wonderful vigor and rapidity.

Make a hot-bed specially for egg-plants and red-peppers, whose habits are very similar. Make it deep, and supply a liberal quantity of dry leaves to render the heat moderate, uniform, and continuous. The 10th of March

is probably the best time, in this latitude, for the purpose. Do not sow the seed broadcast or in drills. Mark off lines six inches apart; and, at intervals of six inches along these, push four or five seed into the soil in a space as large as an old-time silver dollar. Keeping on the sash, and watering freely, in a few days the plants will start, and must have, from the first, a moderate allowance of fresh air, to be increased with their growth. As they enlarge, thin out to three. In a few days, remove the third plant; and possibly, if the ground be well watered, it may be drawn out gently with enough roots to justify transplanting and careful nurture. Unless, however, it be two inches high, and have four healthy leaves, it were better to cast it aside, and save your time. By the 1st of May, the young plants will have acquired, if healthy, some good, strong roots; and then the selection of the best must be made, and the secondary ones removed. This time, with care, the transplants should live and thrive. But an eye must be kept on the plants that remain. These should be watered morning and evening, and, in very hot weather, about three or four o'clock in the afternoon. Often when prostrate, and seemingly withered by the hot sunbeams, I have seen them revived beyond my hopes, and rescued from injury, by the artificial shower.

Early in June, towards evening, in cloudy weather if practicable, and when there is a prospect of rain, make the soil in the hot-bed very wet; employ a large spade or shovel, and insert it gently beneath the plant, so as to take up with each as large a ball of the cohering earth as possible; and carry them, with the aid of another pair of hands (if available), to the bed, and there deposit them gently in their places; if the ground be dry, pausing, when the hole is half filled, to bestow a good watering upon the roots: and, when all the plants are thus treated, fill up with light, dry earth, that no crust be formed on the surface.

Thus treated, the plants will scarcely pause in their growth; and, "moody fellows" as they are called, they will no doubt fall into a *gracious mood*, and repay you generously all the season for your interest and trouble. But ply the rake incessantly, and give the weeds no quarter: no roots beside those of the lawful tenant should feed in the soil; and that soil, as I have suggested, should be deep, rich, well drained, and light.

I will add, in conclusion, that the hot-bed, with its warm, moist earth, and

its tropical atmosphere, is, above all others, the place to rear the young plants; and that flower-pots are greatly injurious, retarding and dwarfing such plants as are not killed by the act of removal to them. No transplanting but the final one to the open bed is required; but, if moved, let the plants be put into another spent hot-bed to obtain more room.

LUTHERVILLE, MD. *C. W. R.*

NOTES ON SOME OF THE NEWER STRAWBERRIES.

Glœde's Perpetual Pine. — I procured plants of this variety direct from the originator last year, but, as I allowed all the runners to grow for plants, saw no indications of its *perpetual* character, as it exhibited neither fruit nor flowers during the whole season, though planted early in spring. The present season, it bore a good crop of full medium-sized berries of a delicate, rich, pine flavor. Flesh white, moderately firm. The plants are vigorous, foliage strong, enduring winter freezing and summer heat admirably. The first crop is now exhausted; and a few plants, from which I have kept the runners rigidly pinched off, are already (July 1) putting forth new fruit-stems. My experience would indicate that this course is imperative to induce second or ever bearing.

Charles Downing. — Fruited upon plants set last fall; and was very satisfactory as to habit of growth, size, quality, and productiveness. Stood the winter remarkably well, and may be considered a very promising variety.

Durand's Seedling. — Handsome and productive; berries large, but entirely too sour and flavorless. To my taste, hardly equal to Wilson in quality.

Higley's Ever-bearing. — Hardy, and apparently a true ever-bearing sort, of the Alpine class. Fruit small; berries long and slender; deep, handsome red; but poor, sour, and insipid in flavor.

Jucunda. — My high estimate of the value of this variety increases with each succeeding year. It was this season the largest, most productive, and very nearly the best in quality, of any strawberry I grew.

It, however, requires generous treatment. A good, strong soil, deeply worked, and kept clear of weeds, grown in hills, with plenty of room, and all runners kept off, are its requirements. With this treatment, it gives here the most satisfactory results, and amply pays for this much of care and attention. Were I confined to *one variety* of strawberry, my choice would be the Jucunda.

Rivers's Seedling Eliza. — Very fine both in size and quality, and moderately productive. Berries uniformly large, even, and well formed; color bright and handsome; flesh white; in size but little inferior to Jucunda, and in flavor fully its equal; foliage strong and vigorous; endures severe winter freezing without protection, and the hot sun of summer without injury. A valuable and good variety.

Agriculturist still maintains its character as a very good, large-fruited strawberry, though irregular in form, and dull in color. A vigorous and hardy vine, quite productive. After its first setting, it gives a good many small and imperfect berries; but is still among the best of the large-fruited kinds.

All the above are staminate or perfect flowering varieties.

Geo. W. Campbell.

Delaware, O.

THE KIRTLAND RASPBERRY

Is a variety which I think is not as well and generally known as it should be. I have cultivated it for about twelve years; have never given it winter protection; and have not once failed to get a full crop during the whole time. Until the advent of the Clarke, I considered it the most valuable red raspberry I had ever grown. It is, in quality, much superior to the Philadelphia, and more attractive every way as grown here; being firmer, of brighter color, and far better flavored. In addition to its other good qualities, it is also a week *earlier* than any other raspberry in my collection.

Geo. W. Campbell.

Delaware, O.

THE GLADIOLUS.

THERE is probably no flower that has grown into popularity so rapidly as the gladiolus. Of comparatively recent introduction, the few species we possessed were but little grown, and not generally in favor. This for two reasons : the finer kinds, such as the *ramosus* and *cardinalis* hybrids, were not adapted for open-air culture, and, in the greenhouse, bloomed at a season when flowers were not wanted ; and, secondly, the only hardy bedding species we had (*G. natalensis* or *psittacinus*) was dull colored, and not particularly attractive. For many years, this last-named species was the only one in garden cultivation. Experiments had often been made to effect hybridization between this and the mere slender-growing, showy-flowered greenhouse species. The Rev. Mr. Herbert of Spofforth, England, — than whom there never has been better authority on bulbous plants, and whose gardens contained more rare bulbs than any collection afforded, — for many years experimented in this direction, but with uniform ill success. While there seemed no reason why hybrids should not be produced, constant failure at last led him to believe the desired result an impossibility. The question was, however, definitely settled by the production, in Ghent, of the hybrid now known as *G. Gandavensis*, which, retaining the vigorous habit of *G. psittacinus* and the yellow-throat, had yet the brighter colors of the more showy *G. cardinalis*. To this variety we probably owe the many showy kinds popularly known as "Gandavensis hybrids."

We should not, however, neglect to mention a popular species with light pink or white flowers, to which we also owe something, and from which, probably, the lighter colors were derived. *G. floribundus* or *oppositiflorus* (from the arrangement of the flowers) is a beautiful species. In habit it is delicate, though more robust than the greenhouse species. The flowers are of a delicate rose-pink or white, with purple throat, produced in long, crowded spikes. The bulb is small ; and, to produce a striking effect, the plants should be grown in clumps. It is a species well worth culture, and, because of the production of more showy species, has met with unmerited neglect.

The first of the "Gandavensis hybrids" which were seen in Boston were

shown by the writer, in 1855, at the weekly shows of the Massachusetts

Horticultural Society. The bulbs had been received from Paris the same

spring, and were of the following varieties, — *Couranti carneus*, *Couranti fulgens*, *Hebe*, *Vesta*, *amabilis*, *Aglœe*, *Adonis*, *Berthe Rabourdin*, *Endymion*, *Sulphureus*, *Egerie*, *Adonis*. All of these are now in general cultivation, and some are still most desirable varieties.

Public attention once directed to these new gladiolus, many were imported; and, the succeeding summer, they were shown in considerable numbers at the horticultural exhibitions.

In addition to the above, the varieties Ninon de l'Enclos, Edith, Æsop, Thisbe, Janire, and Aristotle, appeared. From this time we may date the popularity of the gladiolus: every year brought new foreign varieties, and the list of those in cultivation was greatly increased.

The general habit of all was much the same. The stout growth of Gandavensis combined with rich colors of more delicate species. There were, however, two varieties which even now seem to stand alone both in habit and markings of the flowers, — Pluton and Vulcain, — which, with greater depth and brilliancy of color, have preserved also the habit of the *Cardinalis* tribe. These two varieties are as yet unsurpassed in color, but are of a more delicate constitution, increase less rapidly, and will never become very common or low-priced.

But our amateurs were not long content to import gladiolus, and American seedlings soon made their appearance. It was found that our climate was better adapted to gladiolus-culture than that of either France or England, and many turned their attention to this plant. The result has been, the production of seedlings in immense variety, a great proportion of which are far better than any we can import. There is no doubt that a little careful hybridization and well-directed experiment would produce wonderful results, and give us flowers far superior even to the fine seedlings we now possess.

Gladiolus-culture is very simple. In the first place, a cold, damp, close soil is unfavorable to the plant. Rank manures are also injurious; and every thing of a heating tendency causes disease.

The best mode of preparing a bed is to fork the ground thoroughly in October, mixing in a liberal supply of fine well-rotted cow-manure. About the middle of April, fork over the bed a second time, being careful that the manure is well mixed with the soil. Plant the bulbs about four to six

inches deep, according to the size, the largest being planted deepest. Soon after the shoots appear, give the first tying; a second being necessary when the flower-stalk appears. After the bloom has faded, cut off the flower-stalk, unless it is desirable to ripen seed; and, about the last of October, take up the bulbs, dry them in the sun for a day, trim and clean them, and preserve them until spring in a cool, dry, frost-proof cellar.

In setting the bulbs, the best effect is produced by planting them from nine inches to a foot apart each way; and, where each one is tied to a stake, the effect is very fine when in bloom.

These hybrids generally increase rapidly; the old bulb, or corm, dying, and producing as many new bulbs as there are stems: they vary in number from one to seven.

Around the base of the old bulb we always find more or less little bulblets which have made no leaves: these may be depended upon to produce the original variety. They should be removed, labelled, and allowed to rest for a year; then sown, and they will come up as thick as grass: if sown the next spring, the larger number do not grow. We are aware that there is different experience in this respect, some advocating sowing the bulblets the next spring; but with us the results of such practice have not been favorable.

Many varieties produce seed freely. It should be gathered when ripe, and sown in a frame or in pots or pans the next spring. The young plants grow rapidly, and generally bloom the third year. They may, however, by extra forcing and care, be bloomed in half that time. We know of no greater pleasure in our garden than watching our large beds of seedling gladiolus. Every flower is a new revelation different from the others, unlike its companions, and often far finer than imported varieties.

We had almost forgotten to speak of the gladiolus as a parlor-plant; not for parlor-culture, but for ornamentation. For cut-flowers it has no equal. Place a spike in water of which the lower blooms are just opening: it will go on and expand every flower, often continuing weeks in full beauty.

For a list of varieties we are somewhat at a loss: of many of the more recent foreign kinds we cannot speak from experience, as we scorned the folly of importing gladiolus at a price of from three to five dollars a bulb, when we had thousands of which many were quite as fine.

The following are comparatively old varieties, are of moderate cost, and cannot fail to give satisfaction : colors may be ascertained from florists' catalogues : —

Isoline (the earliest bloomer), Adonis, Pluton, Vulcain, Osiris, Pegasus, Ceres, Goliah, Brenchleyensis (the most brilliant for massing), Vesta, Madame de Vatry, Ophis, Canari, Berthe Rabourdin, Madame Leseble, Mars, Napoléon III., Junon, Reine Victoria, Rembrandt, Prince Impérial, Madame Souchet, Belle Gabrielle, Madame Binder, Neptune, Sulphureus, and El Dorado.

We might go on almost indefinitely with the list. There are many more quite as good as those we have mentioned : indeed, all are showy, effective, and worthy of culture ; even the now despised Gandavensis and psittacinus, of which we annually set out large beds. *E. S. R., Jun.*

Glen Ridge, July, 1868.

A CHAPTER ON GREENHOUSES. — No. I.

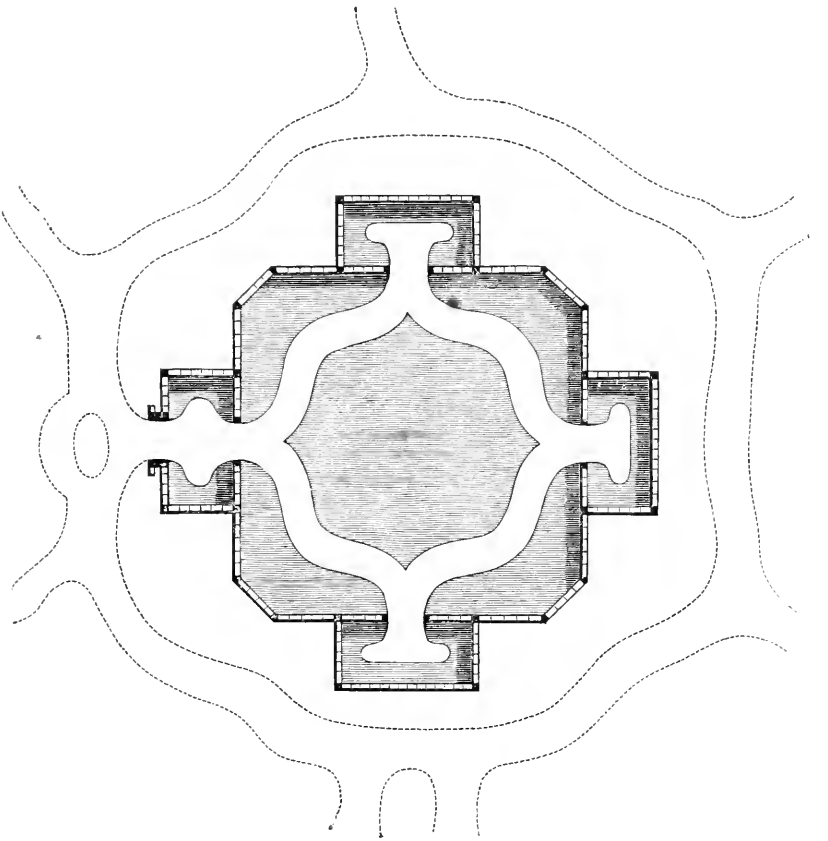
It is proposed to give a series of illustrations of the different forms and designs of horticultural buildings that have been drawn and constructed by the writer during twelve years of practical experience.

These designs will be adapted to the propagating and growth of plants and vines, the forcing of fruits and vegetables, the cultivation of flowers ; and will include the green-house, hot-house, stove-house, orchid-house and fernery, and the camellia-house, as well as other horticultural buildings.

In connection with the present article is a design for a plant-house, adapted for and designed to embellish the grounds of an amateur of moderate means whose taste leads him to enjoy Nature's most queenly gift in flowers and horticulture, and to ornament his grounds with such buildings as may add to its attractions and harmonize with all its surroundings. The location for this design should be on the lawn, slightly in the background, and near some prominent path not far from the dwelling, that it may be easily accessible in stormy weather ; also that the boiler for heating may be placed in the cellar of the dwelling, and the pipes for heating may

be carried in a covered trench under ground to the greenhouse. This building is a little ornamental ; but not more so than good taste would dictate.

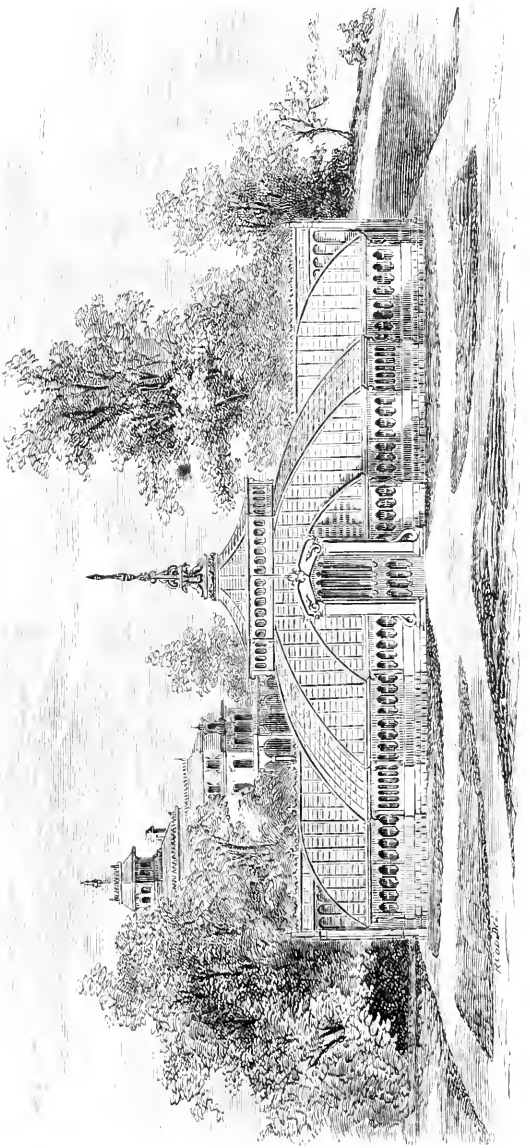
Most of my readers are aware of the difficulty of growing the different species of plants in the same room. The temperature required for one species is fatal to another. The atmosphere of the stove-house would be



disastrous to the flowering of the camellia, azalea, and like plants. The orchid-house and fernery would not suit succulent plants, such as cacti.

The sketch annexed is designed to meet the requirements of the amateur on a small scale. By reference to the ground-plan, it will be seen that the

building is square ; the corners being cut off to give it an easy and grace-



ful architectural appearance. From the main building on each of its four

sides is a small wing, which may be enlarged considerably without destroying its symmetry. It is intended to excavate the interior of the house deep enough to have the front shelving of sufficient height for the top of the flower-pots to be about on a level with the top of the sill, which would allow the plants to be seen from the outside with fine effect. This plan *is not* intended for a large collection, but will admit of a choice and select variety in each department, which may include nearly all that is really desirable.

One of the wings is to be used as an entrance, the sides of which may be availed of for the growth of oranges and lemons in tubs, or for plants of similar requirements of temperature. The second wing may be used as a camellia-house, or for azaleas and plants of the same hardy character. The third wing may be used for a hot-house for plants of a strictly tropical nature. The fourth wing may be used as an orchid-house and fernery, — the orchids to be suspended from the framework of the roof of the house ; the ferns to be planted in the soil on the floor, which should be so arranged with brick-work and rustic stone, that, when flowing water is accessible, it may be conducted through and around them ; care being used to so place the stone, which must be strictly of a rustic nature, with the water passing in gentle motion, with a proper selection of ferns, intermixed with a few water-plants of not too rampant a nature here and there, and other plants, such as dracenas (which do finely) and a few plants of similar habit. The orchids are suspended from the roof, and you will have a view rarely to be excelled. In arranging for this work, care must be used to so place the rustic stone that they may be used as stepping-places for the attendant, space being provided at the entrance for visitors.

If proper temperature is maintained, the moisture generated and arising is such, that but very little other attention is required. The temperature of this room should be from seventy to eighty.

The centre house to be for a general collection of greenhouse-plants, and for the exhibition of flowers in bloom from some of the other apartments.

The walks, it will be observed, are serpentine in form, arranged in easy lines and graceful curves, that the eye may find no resting-place to mar the symmetry of the house. In front, the shelving should be of one broad platform of matched lumber, about twenty inches in height, and in a form to correspond with the walks of the house, with a band on the edges about

three-fourths of an inch high ; the shelf to be covered with clean white sand to receive the pots. The paths should be three feet wide. The centre of the house would require two courses in height : the lower one about twenty-four inches wide ; the second one to rise about twelve inches, and to cover the remaining space. The shelves should have bands on the edges, and be covered with sand similar to the front ones.

Ventilation of centre house is provided by the sashes opening on the four sides of the upper part, or cupola, and also at the bottom sides.

The wings to have flat ventilators in roof, and the sides to open. All the ventilators to be operated with arms fixed upon shafts, so that all in each line may be operated at will ; and to have ball attachment, to keep them tightly closed when shut. The roof of the house should be frosted with a thin solution that will not obstruct the light, and yet *kill* that burning sensation that comes from the sun when at certain altitudes.

We are introducing, for the roof of a conservatory now building, glass prepared expressly by slightly grinding, from which the best of results are expected. The frosting of the roof, if done in a proper manner and with the proper materials, does not obstruct the light sufficiently to affect the growth in winter, but breaks up the tendency to burn or scorch on a bright, sunny day. Under this arrangement, mosses and ferns of a tender nature grow and thrive luxuriantly.

In case it would not be desirable to place the greenhouse in a position where the furnace could be used in the cellar of the dwelling, the ground under one of the wings might be excavated to receive the boiler, and floored over ; the smoke to be brought up and carried out through the centre house by a blind chimney made of cast-iron drain-pipe. In such a case, the finial at top to be dispensed with, and a crown used instead, which shields the pipe form view outside, and inside takes the form of a column to support the roof.

In the arrangement of the heating, provision should be made that each apartment can be operated independent of each other, so that the orchid and hot house may receive heat without the others.

The cost of such a house would be about fifteen hundred or two thousand dollars, exclusive of the heating apparatus. If the glass were frosted, the expense would be slightly increased. Much also would depend upon the size of the wings. *F. A. Lord.*

Syracuse, N.Y.

IS A GERANIUM A PELARGONIUM?

Mr. Editor, — In the May number, your correspondent, Mr. Menard of Albany, takes exception to some remarks I made relative to the attempted changing of the term "geranium" to "pelargonium," and which you indorse as being "eminently just criticism." Permit me to say a few words more in support of the position taken, not by me alone, but by, I believe, ninety-nine out of every hundred gardeners and florists in this country.

I am as well aware as Mr. Menard can be that the name *geranium* is applied to a genus of hardy herbaceous plants of which there are numerous species; I am also aware that this family is widely different from the class known as zonale geraniums: but, whether there is botanical affinity enough to class them as one genus, I am not expert sufficient in the science to say. But certain it is, that we have many species classed under the same genus that have habits and appearance even more dissimilar; the genus *Spirea*, or *Euphorbia*, for example. But I did not presume to question the botanical correctness of the change. I have no knowledge on the subject, nor pretended none; but I do object to following the dictum of some botanical magnate who gives forth his edict of change in the nomenclature of such a varied and popular class.

He may change with impunity, and as much as he pleases, the genera of obscure plants, and will find none to call him in question but the small circle in which he revolves; but when he attempts to rob us of the good old name "geranium," and supplant it with "pelargonium," he will find he has millions to contend with. Every old lady in the land will be up in arms against him; and young ones too, for that matter: for who of them has not their pet geranium, which would lose half its value in their estimation if you forced them to call it by the unfamiliar name of pelargonium? — a name, by the way, even when applied to the legitimate class, that I have found in my amateur friends a great repugnance to use; and to ask them to call their "rose," "nutmeg," or "oak-leaf," a pelargonium, would be trenching upon dangerous ground.

Mr. Menard says that he would like to know from me when the name of *geranium* has been changed for *pelargonium*. I answer him, To the best

of my recollection, it is about ten years ago since I first observed the change in one of the English catalogues. That may not, however, have been the first of it, as he intimates that the term *pelargonium* has been in use for all the class for the last fifty years. Surely he does not mean to tell us that *he* has used that name for the scented zonale and variegated class for the last fifty years. If he has, he has not much reason to be flattered by the effects of his example; for, if a vote could be taken to-morrow, he would find that neither here nor in England has one gardener in a hundred followed his lead.

Mr. Menard asks, "Is it affectation to call things by their proper names?" To make his question pertinent and fair, he should first have proved, which he has not, that pelargonium *is* the "proper" name for all the divisions of this class. But, assuming that it is botanically correct, there is such a thing as putting the science so much on, that it becomes affectation. I remember the foreman of a garden in which I once worked would never allow his dignity to be so lowered as to designate any plant by its popular name. The humble daisy with him was always the *Bellis perennis;* the pansy, the *Viola tricolor;* and on one occasion he nearly frightened a new boy out of his wits by ordering him in an authoritative tone to dig a basketful of *Solanum tuberosum.* The man meant potatoes; but he was a born snob.

The *popular* name, by universal consent, to this class of plants, is unquestionably *geranium;* and any attempt at change, whether botanically right or not, would lead us into confusion inextricable. For my part, I am content to call a shovel a shovel, and a spade a spade: but if any one, by a course of scientific investigation, fancies that he has made the discovery that it is a mistake, and that they are both spades, I will not question his right of opinion; but I am not yet prepared to bow acquiescence.

In my article in the March number, I said that the English nursery-men appeared to be about equally divided on this question. In this I find I was mistaken: the innovators seem to be in a very small minority. In five catalogues now before me, representing some of the most extensive floral establishments in England, one only has yet discovered that the zonale scented and variegated geraniums are pelargoniums. All the others class them as they have been classed for the past half-century. But this one, Mr. William Bules, is "under the distinguished patronage of her Majesty

the Queen," and a roll of other "distinguished nobility" sufficient to form a battalion, and, of course, must affect the newest style.

I have never yet seen an American catalogue of any nursery-man or florist that has been servile enough to imitate this change; and I hope, for the dignity of the trade, I never shall. *Peter Henderson.*

South Bergen, N.J., May 23, 1868.

[Pelargoniums are known in gardens as geraniums, but are very different from them in their spurred calyx, usually irregular corolla, and the number of perfect stamens, which varies from seven down to four.

The geraniums are distinguished by having regular flowers, ten stamens with the filaments united at the base, and five carpels, each tipped by a long glabrous awn (the persistent style), which becomes recurved when it separates from the central axis. — Eds.]

LAYERING GRAPES.

It is generally believed that vines raised by layers are not so good as those raised from single eyes, or even cuttings. After many years' observation, we have entirely failed to discover any difference; and we do not hesitate to advise such of our readers as have a few vines that they wish to multiply to increase their stock by this mode of propagation. The work should be done soon, if old wood is laid down; but, if the new wood is to be used, the work of layering should not be performed until the new wood has hardened somewhat. A great many things are very successfully and profitably raised by layering; and why should not the same rule hold good with the grape? Try it, and see.

GRAPE-VINES ABOUT ROCKS.

It is a well-established fact, that grapes ripen very much earlier at the North when the vines are planted near or about rocks. Last year, while grapes were nearly a failure in the open field, there were cases where a fine crop of perfectly splendid bunches was raised from vines whose roots ran about rocks. The rocks absorb the heat by day, and keep the roots of the grapes warm day and night. Rocks in gardens or fields are usually regarded as nuisances; but, if they are left, a good use can be made of them by planting vines about them.

A PLEA FOR THE BEES.

THE poor bees have recently, if all we hear is true, been terribly persecuted; and we are thus tempted to take up the cudgel in their defence.

The good people of Wenham, Mass., have voted by a two-thirds majority that no bees shall be kept in that town; while in the city of Harrisburg, in the State of Pennsylvania, a jury of "intelligent" citizens decided that bees are a nuisance, and as such must be abated, because, forsooth, a candy manufacturer, not over-cleanly we opine, was greatly bothered by these self-same bees, who made an attack on his sweetmeats. In both instances, the bee-keepers had to get rid of their stock.

Now, Messrs. Editors, are these righteous verdicts? We think not; and we believe the time is coming when the public will cease to wage war on our little friends; and as now, when the follies of laws are made obvious, and protection is given by enactments to insectivorous birds, so, when we find our fruit-crops failing, shall we foster the little honey-workers. This crusade must end sooner or later.

Fifteen or twenty years ago, our orchards teemed with fruit; but now this crop is generally a complete failure. Many reasons have been given for this; but we are more and more confirmed in our opinion, formed years ago, that the whole matter was due to imperfect fructification. Then, on every farm, bees were kept, while the woods were swarming with wild ones. Now things are changed. Gradually the keeping of bees was deemed a nuisance, while the woodman's axe annihilated the haunts of the wild insects. It is a rare thing in this section to find a bee-hive; and, as a consequence, our fruit-crops are almost complete failures. It is a fact well known to all botanists, that it is only by a proper distribution of the pollen from tree to tree, and from flower to flower, that proper fertilization is produced. If this is not done, the fruit aborts; and upon the first rain the ground is covered with them, to the great dismay of the culturist, who blames the spring rain for it. "The heavy rains are ruinous to our fruit" is the only reason for the failure of the crop. When shall we look on these things in the light of science?

As a proof that bee-raising and a plentiful fruit-crop are always compatible, we have several cases which we shall notice.

The first is in reference to the gentleman whose bees were deemed a nuisance, which had to be abated. His trees were always laden with fruit; while, in other localities just as favorable as his, there has been none for several years. What effect there will be on the former place by the loss of the bees, we shall inform you in the future. *Heretofore, he always had an abundance of fruit.*

The next is that of a farmer about eight miles distant, who, previous to 1860, kept bees; and, as a sequel, his trees *bore larger crops and more certain* than since that period.

Another case is where a fruit-grower emigrated West, taking his apiary with him. That farm was always noted for its large yield of fruit; but the removal of the bees has caused a failure of fruit there also, which the ignorant refer to some evil and superstitious influences.

These are but a few instances which have come under our own observation. We have great faith in the theory, that, to be successful in fruit-culture, we must go to bee-raising. We should like to see this matter fully discussed, and hope the correspondents of "The Journal of Horticulture" will take up the subject, and give their observations on this mooted question. The busy honey-gatherers will always find in us a champion for their rights; and, although feebly, we shall ever be willing to advocate their cause.

MANURE.

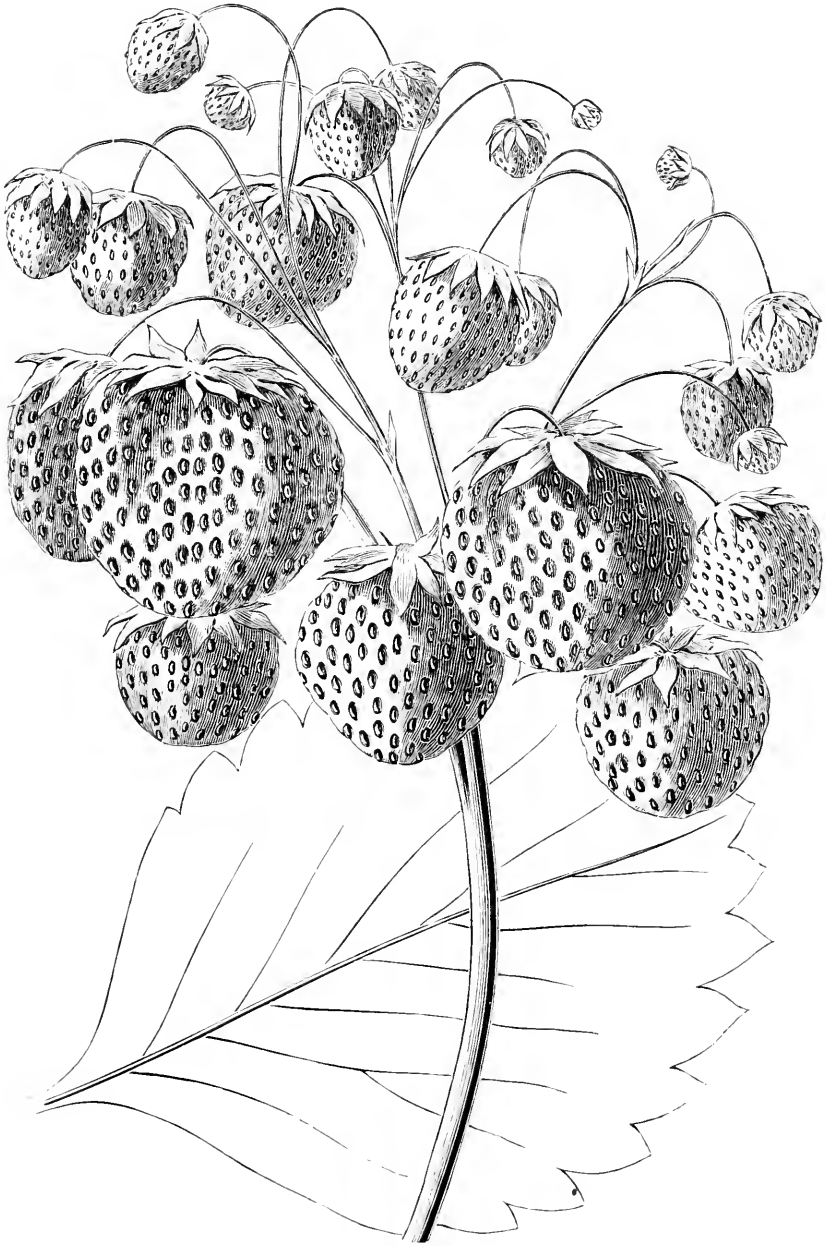
For fine gardening, old and well-rotted manure is indispensable. In order to secure it in its best state for use, it should be kept under cover, and be frequently thrown over; and, if liable to heat, muck should be mixed with it to a limited extent. After a year or so, it will be safe to use it for almost any purpose. While we would say nothing to discourage the use of special manures, we do say, that, for most garden-purposes, we prefer well-rotted horse-manure. If it must be left out-doors, it should be put into a very compact heap, and covered over with muck or loam. One of the most successful gardeners we ever knew never used any horse-manure until it was from one to two years old.

TRITOMA UVARIA.

This is usually treated, at least in New England, as a tender plant. In fact, however, it is half-hardy. When planted in a dry place, a quantity of leaves and a few boards laid over it will keep it uninjured through the winter. The well-known nursery-man, Mr. W. C. Strong, has been in the habit of covering it with leaves alone. Last winter, we were emboldened to try this experiment; but the results were disastrous. Some of the tritomas were killed, and others a good deal injured. On comparing notes with Mr. Strong, we found that his experience had been similar; though, hitherto, he had found a simple covering of leaves sufficient. In future, our plan will be to place leaves over the tritomas, and shutters over the leaves; supporting them in an inclined position, to shed off the rain. Thus treated, we think the plants may be warranted as safe; except, always, in a very wet and heavy soil. *F. Parkman.*

THE LADY-OF-THE-LAKE STRAWBERRY.

This variety was raised in 1862 by the late John C. Scott of Brighton, Mass., who originated the celebrated Brighton Pine. The Lady of the Lake was raised from a cross between the Prince Albert and Brighton Pine, and is a very hardy and very productive variety. Sixteen hundred quarts have been raised on one-fourth of an acre. It is a large-sized, solid, firm berry, bearing carriage well; rather uneven; of a rather dark-red color; seed deeply embedded; flavor good. It is a pistillate variety; and should have some staminate variety planted near it, or the crop will not be satisfactory. When we first saw it, we were not well pleased with it; but, having observed it carefully for several years, we think it will prove a valuable variety. It makes runners freely; which is a valuable quality for field-culture.



FURTHER EXPERIENCES WITH MAGNOLIAS.

THE past season was peculiarly favorable for the several varieties and species cultivated in this vicinity. Their growth of wood, and number, perfection, and beauty of flowers, were never surpassed. In former years, frosts, snow, rain, or blasting winds, occasionally impaired the inflorescence of the early-blossoming kinds, such as *conspicua* and *soulangeana:* but they met with no such unfavorable contingency during the last spring; calm, mild, and clear weather prevailing at the period of their blooming.

The later-flowering kinds flourished equally well during the extreme hot and dry season which followed; and now, at its close, their well-matured wood, and profusion of blow-buds, give promise for a fine display of beauty next season. Public attention is here extensively awakened to their value for ornaments to our gardens and lawns. Nursery-men are pressed with orders for young plants far beyond their means of supply. All doubts in regard to their successful cultivation in this northern latitude have been dispelled; and, to insure their extensive introduction, it only remains to initiate the public into the art of their propagation and management. A little more skill and perseverance are necessary than are requisite for rearing a peach or pear tree; yet no insurmountable obstacle impedes the way.

In a former article, I expressed a doubt as to the specific distinctness of the *cordata* and *acuminata*, having had no favorable opportunity to compare them. Last spring, I discovered good-sized trees standing in contiguity in a front yard on Garden Street, in Cleveland; and I carefully watched their progress of flowering. They are distinct and well-marked species, but are not to be distinguished by the characters laid down in our botanical books. The adoption of the name of *cordata* for that species, by Michaux, was unfortunate for scientific accuracy. Few of its leaves are even *subcordate;* while those of the *acuminata*, especially of young and luxuriant trees, frequently furnish the most perfect specimens of cordate form. Their habits of growth, and the form and color of their flowers, furnish, to the common observer, sufficient characters for specific distinction.

Buds of the *purpurea*, inserted on an *acuminata* stock, having withstood

the impression of two winters without protection, and having made strong growths during two summers, the experiment may be considered a success. This cannot, however, be said of my attempts at budding the *macrophylla* on a similar stock. The buds took well, and formed growths of from *one* to *two* inches last spring; but all withered and perished with the approach of the hot weather of summer.

The *macrophylla* can be raised here from seed, and will flourish on its own roots under suitable cultivation; though its seedlings are rather tardy in producing flowers. Seeds, in limited quantities, can be obtained every autumn at several localities between Tennessee and Massachusetts inclusive, and perhaps in greater abundance from more southern States. I am indebted to my friend William Kenrick for a liberal supply, ripened on his premises at Newton, Mass.

Why the hardy and handsome *auriculata* is so rare, I know not. For twenty-five years, I have faithfully tried to secure either seeds or plants, but in vain; and would now esteem it a special favor if amateur cultivators or nursery-men would inform me where and how either can be obtained.

Recent observation leads me to reiterate the suggestions, — first, that all young magnolias should be slightly protected in winter; second, that all, old and young, must be supplied with woods' soil, mulched, and suitably cultivated. Living turf and the magnolia are incompatibles.

Annexed is a letter from a distinguished horticulturist, whose reputation is favorably known to the readers of this Journal. It contains some interesting items in relation to the magnolia. May not we hope for others on the same subject from him? *J. P. Kirtland.*

CLEVELAND, O., Jan. 1, 1868.

FRUITLAND NURSERIES, AUGUSTA, GA., May 1, 1867.

Dr. J. P. KIRTLAND. *Dear Sir*, — I have read with pleasure your article on "The Magnoliaceæ" in "The Journal of Horticulture;" and as we have in this section of the country a number of varieties of that family not hardy with you, and perhaps, therefore, difficult to take correct notes from, I take the liberty to send you a few notes, which may doubtless enable you to give full descriptions of some varieties not cultivated North. I have for a number of years collected all the different magnolias susceptible of being cultivated, and I have very good specimens. I will confine myself to the evergreen section of the family.

Magnolia grandiflora, which is the king of the Southern broad-leaved evergreens, is here at home, and has given several varieties, among which the *M. grandiflora gloriosa* is certainly the most remarkable. It originated at

Angiers in France, in the grounds of M. Le Bréton, several years ago; and I find, even there, it is little disseminated, and hardly known outside of a few gardens. I secured a specimen of it in 1858. It produced an immense flower the same season, and has continued blooming most profusely every year since then. Last summer, the tree, which is now fifteen feet high, produced upwards of a hundred and fifty flowers during the flowering season.

The flowers are immense; the largest measuring fourteen and a half inches in diameter; and the smallest, twelve inches. The petals number from twelve to fourteen; are of a pure white inside, and veined with green on the base.

The difference between the size of the flowers of this variety, as compared with the *grandiflora*, is about as a flower of the *M. glauca* would be compared with the *grandiflora*. The foliage is large and heavy, with the under side of the young leaves ferruginous. I have a large number of seedlings from this splendid variety, and all show a beautiful foliage.

Magnolia Oxoniensis, *præcox*, *rotundifolia*, *ferrugineæ*, &c., are only trifling sports from the type; some differing from it by the size and shape of the leaves, except *præcox*, which is claimed to blow very early, but this not owing to the variety, but simply by being propagated by inarching limbs of a flowering age upon the true *grandiflora*.

Magnolia grandiflora La Gallisonière is distinct in being hardy much farther north than the other sub-varieties; and no doubt, by taking this variety as a starting-point, and raising seedlings from it, a variety may be produced that could withstand your climate. A trial would not be amiss, as one would be amply repaid if such a result should be accomplished.

I enclose some flowers of our great spring favorite, *Magnolia fuscata*, which here brings forth its deliciously perfumed flowers by the end of May, and lasts two months. It never grows tall, seldom exceeding twenty feet; and assumes the form of a bush. It here bears the name of the Banana Shrub, the odor of which fruit it strongly resembles.

If these notes can be of any use to you in aiding to complete yours on the Magnoliaceæ, I trust you will use them; and, if you will try a plant of our magnolias in your section, I shall be pleased to send you one of each kind next fall.

I am, dear sir, very respectfully your obedient servant,

I. H. Berkman.

To the Editors of "The American Journal of Horticulture and Florist's Companion."

Sir, — Of a country as extensive as Germany, presenting itself under many different aspects, with a variety of scenery, of industries, of soil, and production, it would be extremely difficult for any one, no matter how well informed in relation to it, to give within the compass of a letter a description applicable to the whole, or to any considerable portion. I shall not, then, attempt to do what I consider so difficult, alike deterred by this consideration as well as by a consciousness of not being sufficiently well informed upon the subject; but shall content myself with endeavoring to give you an account of some particulars in reference to it, that, at the time of a somewhat rapid journey through a portion of its territory, attracted my attention, without feeling confined, in doing so, to any regular order or method.

Besides broad plains, Germany has within its confines chains of mountains, ranges of hills, forests, and wide valleys; yet still it may be stated to be generally a level country, particularly in the northern portions of it, well adapted to agricultural purposes. On account of its uninterrupted level character for, in many parts of it, long distances, it becomes to many monotonous and tedious, especially to those who find pleasure in travelling only from views of picturesque scenery. To these, much of the interest of a journey in Germany would be sought, and probably found, in visiting its old towns and cities, interesting, some of them, from their antiquity, and the quaint and singular style of architecture prevailing therein; some from the associations connected with them as the scenes of former remarkable occurrences, or from having been in ancient times the marts of active trade, now diverted into other channels, centres of commerce whence were distributed the products of the East, that through them found

the easiest and nearest route to the consumption of the West (a trade in former as well as in latter times, a fertile source of great wealth); others from being now emporiums where are collected many of the finest specimens of artistic skill and excellence in some of the highest branches of human industry, and large stores of mediæval curiosities and antiquities in its various museums liberally thrown open to all.

Ample means of communication between the different parts of Germany are afforded by the railways that pervade almost all parts of its territory, affording also ready means of intercourse with the countries on its borders, and a transit for the product of its different industries; facilities for such purposes to which some of its rivers, as the Rhine and the Elbe, contribute, such being navigable to some extent for a considerable portion of their course.

The character of the soil, of course, varies essentially, not only in different parts of its territory, but even in districts of limited extent; in some places stiff and clayey, in others sandy. In the wide plains at the northern part of the country, a sandy soil seems to prevail; though in this portion of it is to be found a large extent of what by some is considered as being among the best corn land in Europe. Taking it together, it seemed to me, as I passed rapidly over it, that the prevailing character of the soil was that of a rather light loam, well suited to the raising of grain and the usual agricultural crops. In some parts of Germany, I have seen large beds of peat, that is, I suppose, used, where it exists, for fuel; as I have seen it cut and piled up to dry, as is done frequently in the United States.

Of the extensive forests that once covered much of Germany, but little remains, I presume, now exist. There does not appear, however, any want of wood, either as fuel for domestic purposes or other uses. The ranges of hills, when too high, or not suited to cultivation, are usually covered with forests; and these are sometimes met with, to some extent, growing on ground of a different character. Occasionally, fields, especially on sandy plains, are seen with a thick growth of young spruce, apparently sown or planted; these plantations usually not large, although, sometimes, of considerable extent. The varieties of forest-trees most frequently noticed are spruce, beech, and birch. The spruce strongly resembles the Norway spruce, though not, I think, identical with it. In some parts of Bavaria, I have seen villages consisting, apparently, of small houses built entirely of wood, and sometimes barns constructed of the same material: but this use of wood is rare; the material used for building-purposes being almost exclusively stone or brick, and this generally covered with stucco.

In the southern part of Germany, the scenery is more varied and picturesque than in the northern. The view here is sometimes over broad and wide level plains: but there are more frequently hills covered with trees; and the country is not unfrequently rolling with swells of land, and the prospect diversified. The cultivation, too, is perhaps of a less uniform character, and the crops in greater variety. Instead of a great and almost unvarying extent of wheat, rye, or oats, these are intermingled with fields of hops, tobacco, and poppies, and orchards of apple and pear trees, with groves or avenues of walnuts; all tending to interrupt a uniformity that is apt to tire, and a monotony

that is tedious even when produced by unvarying luxuriant vegetation. In this part of Germany are to be found scenery and landscapes of universally acknowledged beauty. Heidelberg, on the Neckar, an old, picturesque town, surrounded by high wooded hills (on their slopes is its ruined castle, one of the finest remains to be met with, giving from the esplanade in front of it wide views, with the river flowing through the valley in front), and Baden-Baden on the sides and summit of rounded hills, with high hills covered with a forest, in the midst of which are the remains of a large feudal castle as a background, and in front a green valley with a stream flowing through it, are among the scenes that one who has seen them would most regret not to have seen of any that will most probably be met with, at least on the hither side of the Alps.

Grapes are grown to a very considerable extent in some parts of Germany, especially in the southern portions, in Rhenish Bavaria in particular, from which wine of an esteemed quality is made.

Although commercial pursuits and manufacturing and mechanical industry receive a due share of attention, yet Germany must be considered as more especially an agricultural country, for which its wide interior plains seem particularly suited. Upon these, wheat, rye, and oats are raised largely. Upon the rather light or sandy soil in the more northerly part of its territory, a great breadth of land is devoted to the raising of rye ; this grain being largely consumed in all parts of the country as bread-stuff. Much land is devoted to the raising of grass for hay, of which two crops are cut yearly. Potatoes, too, are raised in very considerable quantities, together with sugar-beets, cabbages, and other vegetables. Hops are cultivated to some extent, and a good deal of land is appropriated to the raising of tobacco. I have sometimes seen in the southern part of the country Indian corn cultivated to a limited extent, both as grain and for fodder ; the kind raised being a small-growing variety. Lucern is raised to some extent for fodder ; and, occasionally, small fields of poppies are seen. The country is wholly unenclosed ; and although, after the harvest has been gathered, herds of cattle and flocks of sheep may be seen at pasture, yet, these being watched by herdsmen and shepherds, the necessity for enclosures is obviated.

I do not now remember ever to have seen any agricultural machines in any part of the country. Such may be in use ; but I have not seen them. This is somewhat surprising ; for from its character, being level and smooth, a great portion of the country seems peculiarly adapted to the use of mowing and reaping machines. Yet, although I passed through much of the country while the cutting of the grass and reaping of the grain was in process, I never saw machines applied to these purposes ; but, on the contrary, the use of the scythe and sickle was universal. Both men and women are seen together in the fields, employed in the labors of husbandry ; and it did not appear as if the lighter share was always reserved for the latter. Horses, oxen, and cows seem used for draught indifferently : very frequently, a single ox or cow is attached to a cart, working in a pair of fills, as horses are used with us. Most of the ploughs that I saw were very rudely constructed, —a mere rough, straight timber, to which a share was attached, with the end of this beam resting on a pair of low wheels, and

a rough handle to guide it. With this instrument, good work appeared to be done. The furrows were run straight, and evenly turned, but seemed to be shoal. It seemed to me somewhat remarkable that ploughs of this character, probably made by the farmers themselves, should be in general use, and that those of an improved character had not been introduced; particularly as I had seen at the Paris Exposition, as part of the contribution of Prussia, models of ploughs of all kinds, in great numbers; tending to show that it could not be from ignorance of any improvement having been made that these primitive instruments were adhered to.

The soil and climate of much of Germany, particularly of the southern and central part, seem well adapted to the raising of fruit; and its capabilities for this purpose seem to be generally taken advantage of. Large quantities are raised along the Rhine and the Elbe. The valley through which this latter river flows in the upper part of its course, through what, from the wild and picturesque character of its scenery, is generally known as Saxon Switzerland, seems for a long distance to be wholly occupied by fruit-trees, mainly of pears and apples. Cherries are very abundant and excellent, especially about Dresden. Such as would be probably successfully shown for a prize in your Horticultural Society's Exhibition can be found at any time, during their season, in the market, in large quantity, at a low price. Apricots, plums, and peaches are plenty: selected and the best peaches are very good; but the small and inferior ones very indifferent. Wild berries, such as whortleberries and blackberries, are very common, especially the former, that seem identical with those of the United States, as well as the latter with what is there known as the high-bush variety. In almost all the large towns, public gardens or promenades are provided as places of recreation. These are grounds of considerable extent, planted with shade-trees, and laid out as walks, and sometimes as drives, provided with coffee-houses or other places of refreshment, that are general places of resort; and it is very customary to lay out the ground attached to the stations on the railways in a similar manner, planting them with trees, shrubbery, and flowers. *Joseph S. Cabot.*

March 27, 1868.

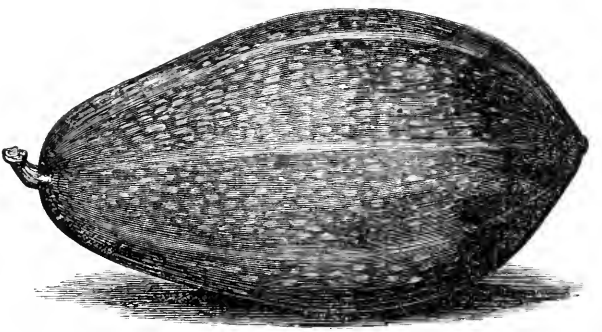
Pruning. — I noticed, in a report of the Alton Horticultural Society, that winter-pruning is considered preferable. This agrees with my experience. I would remark, however, that when large limbs, two inches or more in diameter, are to be removed, a safe plan is to saw off within eight or ten inches of the desired place, and leave the spur to be removed in June or July following. The wound then speedily heals, and leaves no bad scar, while all the benefit of winter-pruning is secured. *Thomas J. Pullen.*

Hightstown, N.J.

Seedling Seckel Pears. — Thomas H. Gerrin, St. Clairsville, O., forwards the secretary a number of seedling pears, under numbers, of which descriptions have been made and retained until the originator shall give to them a name. Several of them are of great excellence in quality, but small in size. Their season, November and December, or into January. — *Am. Pom. Soc.*

FIELD AND GARDEN VEGETABLES. — We give our readers still further extracts from Burr's excellent work on vegetables : —

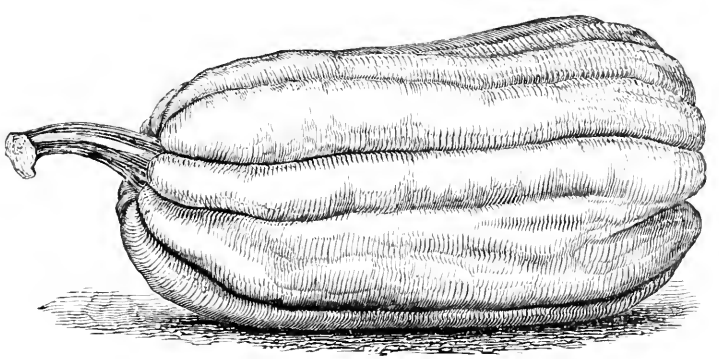
SQUASHES. — *Cocoanut Squash.* — Fruit oval, elongated, sixteen to twenty inches in length, eight or ten inches in diameter, and weighing from fifteen to twenty pounds and upwards ; skin thin, easily pierced or broken, of an ash-gray



color, spotted and marked with light-drab and nankeen-brown, the furrows dividing the ribs light drab ; stem small ; flesh deep orange-yellow, of medium thickness ; seeds pure white, broader in proportion to their length than those of the Hubbard or Boston Marrow.

The quality of the Cocoanut Squash is extremely variable : sometimes the flesh is fine grained, dry, sweet, and of a rich, nut-like flavor ; but well-developed and apparently well-matured specimens are often coarse, fibrous, watery, and unfit for table-use. The variety ripens in September, and will keep till March or April.

Custard Squash. — Plant healthy and of vigorous habit, often twenty feet and



upwards in length ; fruit oblong, gathered in deep folds or wrinkles at the stem, near which it is the smallest, abruptly shortened at the opposite extremity, prom-

inently marked by large, rounded, lengthwise elevations, and corresponding deep furrows, or depressions; skin, or shell, cream-white; flesh pale yellow, not remarkable for solidity or fineness of texture, but well flavored; the seeds yellowish-white, and readily distinguished from those of other varieties by their long and narrow form. Under favorable conditions of soil and season, the Custard Squash attains a large size, often measuring twenty inches and upwards in length, eight or ten inches in diameter, and weighing from eighteen to twenty-five pounds.

Honolulu. — Plant twelve feet or more in length, remarkably strong and vigorous; leaves very large, leaf-stems often three feet and upwards in length; fruit large, oblate, depressed about the stem, broadly and sometimes deeply, but

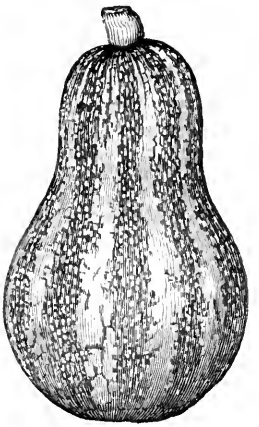
in general faintly ribbed; skin moderately thick, but not shell-like, of an ash-green color, often striped and variegated with drab or lighter shades of green; flesh reddish-orange, very thick, of good flavor, but less dry and sweet than that of the Hubbard or Boston Marrow; seeds large, white.

This recently-introduced variety is hardy, productive, a good keeper, excellent for pies, and by some esteemed for table-use.

Specimens frequently occur of a reddish cream-color, striped and marked with drab or pale yellow.

Puritan. — Plant ten feet and upwards in length; leaves clear green, of medium size; fruit bottle-formed, fourteen or fifteen inches long, and about ten inches in diameter at the broadest part; neck solid, four or five inches in diameter; average weight eight or ten pounds; skin thin, usually white or cream-white, striped and marked with green, though specimens sometimes occur from unmixed seed uniformly green; flesh pale yellow, dry, sweet, mild, and well flavored; seeds of medium size, white. Season from August to January. This variety, long common to gardens in the vicinity of the Old Colony, retains its distinctive character to a remarkable degree, even when grown under the most unfavorable circumstances. Seeds obtained from a gardener who had cultivated the variety indiscriminately among numerous summer and winter kinds for upwards of twenty years produced specimens uniformly true to the normal form,

color, and quality. It is hardy and productive, good for table-use, excellent for



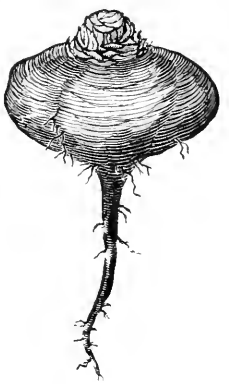
pies, and well deserving of cultivation.

THE BEET. — Root produced entirely within the earth, broadest near the crown, and thence tapering regularly to a point, — average specimens measuring four inches in their greatest diameter, and about a foot in depth; skin dark brown,

thick, hard, and wrinkled or striated, sometimes reticulated or netted, much resembling the bark of some descriptions of trees, — whence the name; flesh very deep, purplish-red, circled and rayed with paler red, fine grained, sugary, and

tender ; leaves numerous, spreading, bright green, slightly stained with red, the leaf-stems and nerves bright purplish-red. An early and comparatively new French variety of fine flavor, excellent for summer use, and, if sown as late as the second week in June, equally valuable for the table during the winter. Not recommended for field-culture. Sow in rows fourteen inches apart, and thin to six inches apart in the rows.

Early Flat Bassano. — Bulb flattened ; six or seven inches in diameter by three or four inches in depth ; not very regular or symmetrical, but often some-



what ribbed, and terminating in a small, slender tap-root ; skin of fine texture, brown above ground, below the surface clear rose-color ; flesh white, circled or zoned with bright pink, — not close grained, but very sugary and well flavored ; leaves numerous, erect, of a lively green color, forming many separate groups or tufts, covering the entire top or crown of the root ; leaf-stems short, greenish-white, marked or stained with rose.

An Italian variety, generally considered the earliest of garden-beets, being from seven to ten days earlier than the Early Blood Turnip-rooted. The flesh, although much coarser than that of many other sorts, is tender, sweet, and of good quality. Roots from early sowings are, however, not suited for winter use, as, when overgrown, they almost invariably become too tough, coarse, and fibrous for table-use. To have them in perfection during winter, the seed should not be sown till near the close of June. In moist, favorable seasons, it succeeds well in comparatively poor, thin soil. Cultivate and preserve as directed for the Early Turnip-rooted.

Early Blood Turnip-rooted. — The roots of this familiar variety are produced almost entirely within the earth, and measure, when of average size, from four inches to four and a half in depth, and about four inches in diameter. Form turbinate, flattened, smooth, and symmetrical ; neck small, top not very slender, and regularly tapering ; skin deep purplish-red ; flesh deep blood-red, sometimes circled and rayed with paler red, remarkably sweet and tender ; leaves erect, not very numerous, and of a deep-red color, sometimes inclining to green, but the stems and nerves always of a deep, brilliant red. The Early Blood Turnip Beet

succeeds well from Canada to the Gulf of Mexico; and in almost every section of the United States is more esteemed, and more generally cultivated for early use, than any other variety. Among market-gardeners, it is the most popular of the summer-beets. It makes a rapid growth, comes early to the table, and, when sown late, keeps well, and is nearly as valuable for use in winter as in summer and autumn.

In common with most of the table-sorts, the turnip-rooted beets are much sweeter and more tender if pulled before they are fully grown; and consequent-

ly, to have a continued supply in their greatest perfection, sowings should be made from the beginning of April to the last of June, at intervals of two or three weeks.

The roots, especially those intended for seed, should be harvested before severe frosts, as they are liable to decay when frozen at the crown, or even chilled. Sow in drills fourteen inches apart; and, when two inches in height, thin out the plants to six inches apart in the drills. An acre of land in good cultivavation will yield from seven to eight hundred bushels.

Half Long-Blood. — Root produced within the earth; of medium size, or

rather small, usually measuring about three inches in thickness near the crown, and tapering regularly to a point, the length being ten or twelve inches; skin smooth, very deep purplish-red; flesh deep blood-red, circled and rayed with paler red; remarkably fine grained, of firm texture, and very sugary; leaves small, bright red, blistered on the surface, and spreading horizontally; leaf-stems short. An excellent half-early, garden variety, sweet, and well flavored; a good keeper, and by many considered superior to the Common Long-Blood. When full grown it is still tender and fine grained, and much less stringy and fibrous than some beets at an equally advanced stage of growth. It may be classed as one of the best table-beets, and is well worthy of cultivation.

Improved Long-Blood. — This is an improved variety of the Common Long-Blood, attaining a much larger size, and differing in its form, and manner of growth.

When matured in good soil, its length is from eighteen inches to two feet; and

its diameter, which is retained for more than half its length, is from four to five inches.

It is seldom symmetrical in its form; for, though it has but few straggling side-roots, it is almost invariably bent and distorted. Skin smooth, very deep or blackish purple; flesh dark blood-red, sweet, and fine grained, while the

root is young and small, but liable to be tough and fibrous when full grown; leaves small, erect, red, and not very numerous; leaf-stems blood-red.

This beet, like the Common Long-Blood, is a popular winter sort, retaining its color well when boiled. It is of larger size than the last named, grows more above the surface of the ground, and has fewer fibrous and accidental small side-roots. While young, it compares favorably with the old variety; but, when full grown, can hardly be said to be much superior. To have the variety in its greatest perfection for winter-use, the seed should not be sown before the 10th of June; as the roots of this, as well as those of nearly all the table varieties, are much more tender and succulent when very rapidly grown and of about two-thirds their full size.

Sow in drills fifteen inches apart, and thin to eight inches apart in the drills; or sow in ridges eighteen inches apart.

Seedling Hybrid Grapes. — I feel as though it was rather premature for me to say any thing about my seedlings, as I have not yet had sufficient experience to determine their character satisfactorily even to myself. The two of which I exhibited you samples, I regard as the best I have yet produced as table-grapes. As to hardiness, they stood wholly exposed for several years until last winter, when I covered them, being anxious to have them fruit, and wishing to guard against possibility of injury to fruit-buds. So far as I have observed, I think them as hardy to resist the effects of cold as Catawbas, and with foliage as hardy and healthy as Delaware. As to productiveness, I can say nothing. They are both from Delaware seed, cross-bred or hybridized with Grizzly Frontignan. Another hybrid, from Delaware seed, hybridized with Black Hamburg, bore this season for the first time, and is a black grape, with much of the Hamburg flavor; the general character of the vine much like the others. A cross-bred between Delaware and Logan, from Logan seed, seemed also to have some good qualities, ripening very early; I think, a week or more before the Hartford. Flavor much like Delaware, but more vinous or sprightly, and in consistence very juicy and free from pulp, and devoid of foxiness. Bunch and berry, this its first year of bearing, both small; color black. Another cross, between Logan and Catawba, somewhat resembled the above; but the bunches and berries were much larger, and period of ripening later, — about with the Concord. The above are the only ones among the many seedlings and hybrids I have raised that I consider even *promising*, unless it may be the seedling Delaware I exhibited you, which may have some value for wine, as it is perfectly hardy, has foliage nearly as heavy as Concord, and is very productive. It is, however, inferior to the Delaware as a table-grape, and seems to have the bad habit of falling easily from the bunch if over-ripe. I expect to have, every year, new seedlings coming into bearing; and each year will also further develop those which have borne: and, if any of them prove really valuable acquisitions, they will be exhibited, and introduced if pronounced worthy by competent committees; but not otherwise. — *George W. Campbell to Am. Pom. Soc.*

EVERGREENS. — Evergreens are trees that hold their foliage throughout the year: such are the great families of pines, spruces, and cedars. Some are evergreen in warm climates, and become deciduous in cold latitudes. The subject of evergreens was to have engaged your attention in this paper; but it may be well for a few moments to take a more general view of trees.

There seem to be very few subjects more closely connected with man's general prosperity, and indeed with that of all animal life, viewed in reference to fuel, food, health, raiment and shelter, civilization and refinement, morals and religion. We shall be deeply impressed that "the tree of the field is man's life," and of the dignity and importance of arboriculture. I will call your attention to a few facts, probably familiar to most of you. These will not be confined to evergreens, but will have an important bearing by enhancing their price and value; for the destruction of any valuable species of tree must enhance the value of others. I will call your attention to the past destruction of forests. The evils are so numerous and far-reaching, that it will be impossible in this short article to give even an outline, or allude to them all. It may be seen in the greatly-increased price of fuel, lumber, and timber, and, as a consequence, in the increased price and value of all articles manufactured in part or whole from those materials; and the immense demand for such purposes may be measurably indicated by the fact (see census of 1860), that there are sixty-six occupations which depend, in whole or in part, upon wood as a raw material. The total number thus engaged in 1860 was 476,623 souls. A few of them are as follow: 242,959 carpenters, 7,000 coffin-makers, 15,000 sawyers, 9,063 mill-wrights, 13,379 ship-carpenters, 43,624 coopers, 32 693 wheelwrights, 2,378 piano-makers, and 19,180 coachmakers. Undoubtedly most, if not all, of these numbers have been greatly augmented since; and the consumption of wood and the destruction of our forests are going on in an ever-increasing ratio.

The cost of lumber consumed in and exported from the United States in 1860, more than in 1850, is estimated at $37,390,310; while the ratio of this increase in population was 35.59 per cent, and that of lumber was 63.09 per cent; thus showing a greatly disproportioned increase in price of lumber over population. Should this proportionate advance continue for the next twenty years, more than $200,000,000 worth of American sawed lumber will be needed each year. It is easy to see that this must not only continue, but must do so in an ever-increasing ratio, unless this wholesale destruction is checked; and, at this rate, how long will it be before our noble forests will be entirely gone?

It is said that the State of New York furnishes more lumber than any other State; and yet her highest capacity was reached as long ago as 1850; and, notwithstanding the enhanced value, she supplied $1,000,000 worth less in 1860 than in 1850. Thus her *population* increased more than three-fourths of a million, while her supply of lumber fell short more than a full million. Five other States have also diminished their maximum supply. How long, at this rate, until half the wealth of these United States will be gone? for it is stated upon good authority, borne out by statistics, that wood pays more than one-half of the internal revenue of the United States. So greatly short of supply, according to the demand, for black-walnut and some other woods, are the Eastern States, that they have

already sent to Michigan and Wisconsin for supplies. Of course, this supply can last but a few years; while the demand is immense, and ever on the increase. In view of this state of things, are not our indifference and apathy in the highest degree alarming and criminal, while our forests are melting away before the woodman's axe like frost before the rising sun? We, in our innocence or ignorance, dream that these things will ever continue as they are. The question of fuel, lumber, and timber, for the many wants connected with human life, although a very serious and important one, is perhaps not the most serious and important one growing out of this subject. But the effect that the wholesale destruction of our forests will have upon our climate, all our agricultural and horticultural products, and life itself, will be most disastrous. Then will the hand of famine no more spare us than we do now the monarchs of the wood. Every citizen, and especially every landholder, with a view to his duty and pleasure, should earnestly study this subject, especially in relation to climate, since proper climatic conditions are essential to life. Accurate and extensive observations, and scientific investigations and historical records, clearly show that forests do exert a controlling influence on the climate of every land, probably through the leaves condensing the moisture of the atmosphere; also by shading the ground; and, after they drop, in acting as a mulch, retaining moisture in the soil, as well as by the decay of the wood itself. Whatever the mode, the fact is unquestioned, that, as forests abound, we have more springs and streams, a more equal and copious rain-fall, are more free from sudden and extreme fluctuations of temperature, and therefore from spring and autumn frosts; and, of course, since the success of our grain and fruit crops depends upon such exemptions from frost at both ends of the season, it is not difficult to see how the forest-tree, as well as fruit-tree, is "the tree of life to man." And here I regret my inability and your limited time to do this subject ample justice; but must, at the risk of being tedious, introduce a few facts. To impress this point more fully, "The Western Rural" gives an extract from an address by R. C. Kedzie of Michigan Agricultural College. I give only a portion of it: "Thus Egypt, from the earliest periods of history, has been spoken of as a rainless region; but, since Mehemet Ali has made his immense plantations, showers have become frequent. The controlling influence of forest over rain-fall is also shown by the fact, that countries once supplied with forests, and having abundant rains, and immunity from frosts, their forests having been destroyed, have been scourged by drought and frost till the forests were restored, when they once more became fruitful; or, if the inhabitants would not restore, the stern hand of famine threatened to wipe out a race that would not reverence the order of Nature. Thus the Cape de Verd Islands, so called from their greenness, have been stripped of their forests by their improvident inhabitants: since which time they suffer terribly from periodical droughts, no rain falling at times for three years; and thirty thousand inhabitants, or one-third of the population, have perished. Thus famine cuts down the inhabitants as pitilessly as they cut down the protecting forests. It has been proposed to replant the forests; yet such is the ignorance and indolence of the inhabitants, that little has been done: and it is probable that the entire race may be cut off, to be replaced by those who have learned that the 'tree of the

field is man's life.'" Rev. F. Starr, jun., of St. Louis, Mo., in a very able article on American forests (which every one ought to read), published in the Patent-office Report for 1865, says, "We ought to learn from the experience of other nations great and terrible lessons, without madly insisting upon suffering the same disasters ourselves. The history of the world presents to us a fearful record respecting the destruction of the forests. Palestine and Syria, Egypt and Italy, France and Spain, have seen some of their most populous regions turned into forsaken wildernesses, and their most fertile land into sandy deserts. The danger to our land is near at hand, — nearer by thirty years than the most intelligent suppose. We need immediate action, both for prevention and restoration." Hear the words of Hon. G. P. Marsh, than whom, perhaps, no other is equally qualified to speak on this subject. His great natural gifts, high position, extensive travels, and remarkable powers of observation, should give his words the greatest authority and power. He says, "There are parts of Asia Minor, of Northern Africa, of Greece, and even of Alpine Europe, where the operation of causes set in motion by man has brought the face of the earth to a desolation almost as complete as that of the moon; though, within the brief space of time men call the 'historical period,' they are known to have been covered with luxuriant woods, verdant pastures, and fertile meadows. They are now too far deteriorated to be reclaimed by man; nor can they again become fitted for human use, except through great geological changes, or other mysterious influences or agencies of which we have no present knowledge, and over which we have no prospective control. The earth is fast becoming an unfit home for its noblest inhabitants; and another era of equal human crime and human improvidence, and of like duration, with that through which traces of that crime and improvidence extend, would reduce it to such a condition of impoverished productiveness, of shattered surface, of climatic excess, as to threaten the deprivation, barbarism, and perhaps even extinction, of the species.

"The destructive changes occasioned by the agency of man upon the flanks of the Alps, the Apennines, the Pyrenees, and other mountain-ranges in Central and Southern Europe, and the progress of physical deterioration, have become so rapid, that, in some localities, a single generation has witnessed the beginning and the end of the melancholy revolution. It is certain that a desolation like that which has overwhelmed many once beautiful and fertile regions of Europe awaits an important part of the territory of the United States, unless prompt measures are taken to check the action of destructive causes already in operation."

These interesting facts should warn us of the impending danger to our beloved country, and urge us to the most energetic efforts. We should endeavor to meet the question both through private and legislative action.

In reference to large tracts of timber-land yet in the possession of the Government, surveys defining the exact boundary of every section, and strips of timber most favorably situated for wind-breaks, sacredly preserved from the woodman's axe under heavy penalties, the same could be accomplished by private enterprise and sympathetic effort in reference to land already in their possession. The great want of our country is not so much large and unbroken

tracts of forests in some districts, and correspondingly large, clear tracts in others, as smaller tracts more evenly distributed over the entire land. Probably the proportion of forest to the entire land should not be less than thirty per cent in this region, or districts still nearer the centre of the United States, or more nearly midway between the oceans: nearer large bodies of water, a less proportion would answer. In the absence of extended and accurate observations, we cannot be definite; though no doubt an unalterable law governs this whole matter as all matters, according to which, at some future day, all other surrounding influencing causes can be determined in kind and degree (such as amount of water, and how situated). Such being the fact, when the exact proportion between forest and entire surface is known, the exact amount of rain-fall and other results may be mathematically demonstrated. G. P. Marsh says, "In 1750, Mirabeau estimated that there should be retained in France thirty-two per cent of land in wood." The forests were destroyed with most disastrous effects upon the general prosperity, far faster than his estimated allowance; and the percentage was reduced far below that proportion. "It is evident that the proportion of forest in 1750, taking even Mirabeau's large estimate, was not much too great for permanent maintenance; though doubtless the distribution was so unequal, that it would have been sound policy to fell the woods and clear the land in some provinces, while large forests should have been planted in others. . . . Since writing the above, I found the view I have taken of this point confirmed by the careful investigations of Reutzsch, who estimates the proper proportion of woodland to entire surface at twenty-three per cent for the interior of Germany; and supposes near the coast, where the air is supplied with humidity by evaporation from the sea, it might safely be reduced to twenty per cent. The due proportion for France would considerably exceed that for the German States." Now, if the German States require twenty-three per cent midway between the North Sea, the Baltic, and the Mediterranean, what is demanded by the great area between the Mississippi and the Rocky Mountains, almost without water from the Gulf of California to the Polar Sea? — a region of country almost destitute of forests and water, and therefore subject to extremes of heat and cold beyond any other portion of this continent. The thermometrical observation made at Cantonment, Leavenworth, during many years, fully confirms this point; for at no other point in the United States where similar observations were made were those changes as sudden and severe. The terrible droughts and the great loss of life by cold on those plains are also to the same point. And now, in view of all the impending dangers to our country, — for we have already entered upon and are far advanced and rapidly travelling the road which will lead to the same ruin, — forests are disappearing all over our country. From the same causes, the New-England States are already suffering in many ways, and the evils with their causes extending southward, westward, and northward. Our prairies are always subject to great extremes of temperature, of winds and droughts, of floods and frosts; and as the great forests east, west, and north-west of us, are being rapidly exhausted, all these effects will be greatly and continually intensified. Is it difficult, then, to see both our duty and pleasure in tree-culture? Let us plant for fruit, for timber, and for ornament, but,

above all, for screens and wind-breaks; for these are the "great want of the prairies," and it is here that tree-planting will be prosecuted with the greatest zeal and most telling effect. And, for beauty and protection, the evergreen stands unrivalled, especially through the bleak and dreary winter; for, while it has a multitude of uses in common with deciduous trees, it seems peculiarly fitted to form protective barriers against the fierce and desolating winds. Standing to the leeward of a "rank and file" of these sturdy life-guards, we may laugh to scorn the rage and fury of the Storm-King; for his shafts of death are met, and beaten into spray, and his terrific roaring passes as unharmed over our heads as the whispering zephyr. I have often thought, that, if evergreens had no other use than that of protection and beauty in Nature's great arboretum, God's wisdom and goodness would be vindicated.

While deciduous trees and vines, in common with evergreens, are beautiful, many exquisitely delicate and graceful, as well as noble and majestic, yet their greatest charm — their beautiful foliage — lasts but half the year: a few attacks of the Frost-Angel impart the hectic flush of death, and, in a brief space, disrobe it of its lovely habiliments, bedecking the ground with a gorgeous carpet of crimson and gold, — a very suitable covering for the delicate roots of the generous tree which gives so much, and receives so little in return except ill usage. But, for the want of the protection of our friend the evergreen, these leaves are scattered, like friends in adversity; and our trees are left unprotected in root and branch, while the leafless branches remind us forcibly that Winter is once more upon his throne.

If we but turn our eyes upon the unchanged and full-foliaged, cheerful evergreen, we shall realize that his reign is but half complete. When the ground is covered with snow as with a mantle, how cheery and comfortable looks the noble Norway in his habit of dark green, and the rugged Scotch and majestic Austrian pines, or the balsam with its recurved leaves of metallic lustre, and the hemlock, one of the most graceful in the whole family, with its pendent branches of feathery, delicate spray! We cannot stop even to name the many desirable varieties whose ever-present foliage of many hues would cheer us through the bleak months of winter.

We will imagine, for a few moments, every Western and Northern roadside set with double or triple rows of evergreens; every ten, twenty, and forty acre lot, every orchard, barnyard, and garden, protected on the exposed sides; our own dwellings surrounded by ornamental grounds, planted with many of the rich and beautiful hardy kinds, in groups and belts, and single specimens, in some places standing alone, and in others intermingled with and surrounding deciduous trees and vines. Thus our vineyards, orchards, fields of grain, and all our domestic animals, protected from the terrible winds, excessive cold and heat, excessive rains and floods, excessive droughts and frosts, controlled, our domestic animals would thrive and improve more, our grain-crops would increase, our orchards and vineyards would yield us more and better fruit; and it is not too much to say that many kinds of fruits, of shade and ornamental trees, and vines that are now entirely too tender here, would be hardy under the changed condition of things. How inspiring even the vision, in prospect, of almost boundless

plains, with scarcely a tree or shrub to cheer the weary sight, converted into garden-like farms, with beautiful orchards, vineyards, ornamental grounds, and suitable dwellings, all protected by walls of living green, painted by the great Architect himself with the most pleasing and fadeless color, — a fit habitation for the goddess Sylva herself!

Trees by the million are now grown annually by single individuals in our own country; millions more are imported from abroad; and the demand seems to keep pace with the supply, and both are on the increase. This augurs for us a glorious future for the myriads of acres of rich but treeless tracts of land awaiting their reception. Here, then, is an object worthy the noblest ambition. Then let us all plant, and sacredly care for and cultivate, all the rich treasures of our gracious Flora, Pomona, and Sylva, "until from sea to sea it will seem to all men like the garden of the Lord." — *J. G. Babach, in Trans. Ill. Hort. Soc.*

THE BARK-LICE (*Coccidæ*): HOW TO DESTROY THEM. — The apple-tree bark-lice, which have destroyed so many of our trees in this city and state, commenced hatching on Sunday, May 24, — ten days earlier than last year. Their moving or motion life lasts only about five days, when they become stationary; and, by process provided by Nature, they form over themselves a house (the scales), where they remain for one year, to be then reproduced by another nest of eggs.

The first week after they are hatched, they are very tender, and are easily destroyed by washing the trees thoroughly with strong soap and water, — say one quart of soap to five quarts of water; or they may be removed by a stiff brush, as any falling to the ground must perish.

The insect measures only the hundredth part of an inch, and can be seen with a microscope of moderate power; while the full size of the scale is about ten times as much.

Trees that are badly infested should be cleaned as far up on the limbs as you can afford the time, and then cut off above where it is cleaned, about the 20th of June, which is the best time of the year to prune trees. The trees will throw out new shoots; and you will soon have a fine-topped tree, free of lice unless neighboring trees furnish a new colony. The sooner the washing commences after the hatching, the better; and, if delayed too long, stronger wash should be used.

The theory that bark-lice can be forced from the trees by a rapid growth is erroneous, as the trees must succumb in time to the millions of insects. — *State Journal.*

PINUS RUSSELLIANÁ. — This splendid tree is one of the peculiarly fine, robust-growing, and noble Mexican pines. The young wood is, in winter, of a rich red or ochre color; the shoots forming a curve. The foot-stalks of the leaves are above an inch in length, and are also red. The leaves grow in fives, and are from eleven to twelve inches in length, of a beautiful grass-green, slightly drooping from the upper side of the curve. Altogether, it is a very beautiful tree. It is growing here finely, but in a sheltered locality, and cannot be generally recommended as a hardy tree. — *Florist and Pomologist.*

TRELLISED FRUIT-WALLS. — I lately heard a discussion on the alleged advantages of wall-trees being fastened to a trellis, instead of being nailed to a wall. It was argued against nailing to the wall, that the part of the fruit next the wall did not ripen like that exposed to the sun. Such may be the case in bad seasons, especially with apricots; but the case may be worse with those on a trellis, on which the trees are not only deprived of the reflected heat by the draught of air between the trellis and the wall, but also the warmth from the wall during the night: besides, the shade by either plan would be nearly alike; and the ripening of the crop depends more on the action of the sun upon the leaves than upon its hot rays impinging on the fruit. The ripest fruit may be found under the leaves, in consequence of its having, according to their health, had more nutriment from them, modified by the rays of light. The unequal ripening of fruits depends more on how the stalk-ends are situated; which in general, being next the wall, or close upon the shoot, and the sap-vessels in those parts of the fruit through which the juices flow to nourish it, are the last to ripen or decay. Although this may be little thought of, it is nevertheless true; and the same may apply to all kinds of fruit, the good qualities of which depend much on the health of the leaves, as just noticed. Therefore the too common plan of picking off the leaves to "let the sun to the fruit" should be done with great caution. If possible, none of the fruit-bearing shoots should be deprived of their leaves; otherwise, for want of proper nourishment, the exposed parts of the fruit may be scorched or ripened prematurely by hot sunshine. This may be the principal cause of fruit ripening on one side, and remaining green on the other.

Connected with this subject, I may mention that the ripening of all kinds of fruit is only the beginning of decay in the pulpy matter which protects or matures their seed. In general, this is situated in the heart of the fruit; but in other cases, as in the strawberry, on the outside. Moreover, however pleasing to the eye or taste cultivated fruits may be, they are only monstrosities from their original species, — the apple a puffed-up crab, and the peach a swollen almond. Consequently, seedlings, the offspring of these monsters, are often more like the original stocks than like the cultivated parent. As an instance, I once raised some seedling-pears from seed of the best new kinds; and only two of them have produced fruit worth notice: the rest are of rank growth, as full of spines as if they had been reared from seeds of wild pears, and only fit for grafting upon. — *J. W., in Florist and Pomologist.*

PINUS PATULA. — One of the Mexican pines, and a most graceful and distinct species. Its wood is of a peculiar lead-color. The foliage is from eight to nine inches in length, and grows in threes, very delicate, and most graceful, of a fine silver-gray color, hanging perpendicularly or pendulous on either or on both sides of its delicate branches, like the hair neatly parted on a young lady's head. The tree is handsome at all seasons; but it lights up in the most glorious manner with a gleam of sun, and waft of wind. There is a fine tree of this species growing here, which has borne cones for years past. — *James Barnes, in Florist and Pomologist.*

On watering Out-Door Plants. — An opinion prevails among gardeners that night is the proper time to water plants; and this opinion is generally acted on: but I suggest that the early morning is a better time for performing that operation, — a suggestion which I support by the following arguments: Two acknowledged agents in promoting vigorous growth are heat and moisture. Moisture is under our control; but if we exercise that control, and water our plants in the evening during dry weather, we do so at the expense of a great portion of the heat we desire to preserve. Two influences are at that time brought into operation in cooling down the soil and retarding the growth of the plants, which we vainly endeavor to urge forward by moisture: these are evaporation and radiation. Now, evaporation cannot take place unless at the expense of heat; or, in other words, without producing cold. Let us look, then, at the effects of watering in the evening. Evaporation goes on briskly, the temperature sinks, and there are no sun's rays to communicate fresh heat; the plants are chilled, and their growth is sometimes even less than that of plants not watered at all, but which have been allowed to take their chance. The other source of diminished temperature is radiation. Every warm body tends continually to throw off heat to all others of lower temperature, near or remote. All objects do not radiate heat with equal rapidity; but rough and darkly-colored surfaces do so more readily than those which are light and smooth. Now, almost all soils are darkened in color by moisture: hence, by watering, the soil is reduced to the best possible condition for getting cooled down during the night. Thus the combined influence of evaporation and radiation occasioned by evening watering exerts itself in thwarting the intentions of those who heedlessly practise it.

The best time for watering exposed plants I consider to be early in the morning, as the sun's rays are then beginning to be felt, and to exert their counteracting influence. The darkened surface — that very condition which made the soil throw off its heat more readily during the night — causes it to absorb the heat of the sun's rays by day with increased facility; so that we thus secure the greatest amount of the fostering agencies of heat and moisture to push on the growth of our plants.

Now, by deep cultivation, with moderate manuring, watering may almost be reduced to a minimum. Watering, unless well done, does more harm than good. Very few men can water plants properly, either in pots or the open ground. It is, I consider, the most difficult part of a gardener's business to water plants well. If all the extra labor required for watering were devoted to stirring and deep digging, our plants would give more flowers at less trouble, and of better quality. — *G. McB., in Florist and Pomologist.*

The Surprise Raspberry. — As this variety has lately attracted the attention of fruit-growers throughout the country, and as I happen to know a little more of its history than all those who speak about it, having first discovered it, I will give your readers what I know, and my experience with it for ten years.

This fruit is only another evidence of the spontaneous production of new and

improved varieties in a soil and climate so eminently adapted to fruit-growing as the soil and climate of Missouri. It was found by me, if I recollect right, in the summer of 1858, in a fence corner; and as I was "surprised" by its large size, juiciness, flavor, and great yield, I called it "Surprise." It is evidently a chance seedling of our common Black-cap, which grows wild everywhere. It resembles it in strong growth; although the young canes have but few and short spines, and the leaves are generally somewhat more rough, and of a deeper green. When ripened, the canes are bluish-purple, like our common Black-cap. It also propagates from the ends of the young shoots, as all Black-caps, but is rather more difficult to propagate. The fruit is borne on stiff, upright branches, generally ten to twelve in a cluster at the end of the branch, with a few single berries occasionally all along the branch. It is black with a blue bloom, oblong or pointed, about the size of a Red Antwerp (I have had berries three-fourths of an inch long by half an inch in diameter), more juicy than our common Black-cap, and containing fewer seeds; sweet; parts readily from the cone; and is sufficiently firm to carry well. The fruit ripens gradually, and every berry generally attains full size. It is decidedly the most valuable of about twenty varieties which I have; as it has never failed to produce a good crop yet, without protection or extra care. It is ripe here now (12th of June). I confess that I have neglected this excellent berry too long: but small fruits are not my specialty; and I was, perhaps, too careful not to add another fruit of no decided merit over others to our already crowded lists. But a trial of ten years, and the good reports which better authorities on the raspberry than I profess to be give of it, have at last convinced me that it should be more generally known and cultivated. If such men as A. S. Fuller, Samuel Miller, and Major Freas of "The Germantown Telegraph," speak well of it, I must take it for granted that my own good opinion was well founded.

Although I am now cultivating it for family-use, I have not, as yet, any plants to sell, therefore no "axe to grind." But if you, Mr. Editor, or any of the "shining lights of horticulture," wish to try it, a few plants are heartily at your service; and I can only hope that you may be "surprised" by it as I have been. *George Husmann.*

Hermann, Mo., June 12, 1868.

[We are glad to hear so good an account of this raspberry; and we should like "to try it" on a small scale. Such a variety, requiring no protection, will be of value. — *Ed.*]

A Field for Labor. — I do not know that it is any new theory, that all artificial modes of propagation for the purpose of continuing varieties are only so many means of lessening hardiness in trees. It may not be from that cause alone; but observation has led me to the conclusion, that grafted or budded trees of most if not all sorts of fruit are less hardy than those grown from the seed. Seedlings of most fruits, of whatever variety and quality, seem to be better able to withstand the changes and rigors of climate, and the incidents of weather, than those grown by artificial means. What the cause of this may be I will not now stop to inquire: it may or it may not be within the knowledge of man,

or capable of being brought under the control of human agency. But the inquiry naturally presents itself, Are there not safer and surer modes of propagation than those practised, and by which better results may be secured?

All varieties are produced originally from the seed. In the language of Scripture, each tree was ordained to bear fruit after its kind. This I take in its literal sense, and have little doubt that such is the law governing production; from which there would be no deviation, were it not for external and accidental causes. The winds and the insects are doubtless the chief instrumentalities by which, so to say, this law is rendered a dead letter. These scatter the fructifying element from flower to flower, and from tree to tree; and thus mingle and diversify qualities which had else been transmitted continually in a direct line.

It would seem to be impossible, while these accidental causes are allowed to operate, for the law to be carried out. But is it so? Can there be no way devised by which this law of Nature may be assisted in its operation?

Whether or not these influences can ever be successfully counteracted, it would seem wise in us to direct our attention to the production of new seedlings. Take the peach, for example. This fine fruit is notoriously tender when propagated by artificial means in all localities where I have seen it grow. Some of its sorts are known to be governed in their growth by this original law of production, and to resist all counteracting external influences. Investigation may lead to the discovery of the cause of this difference: at any rate, observation will enable us to make selection of the proven sorts, and propagate them from the seed, and thus gradually do away with the artificial modes.

To my mind, there is here open a very interesting field for investigation; one which, if entered in a true spirit of philosophic inquiry, will produce a rich harvest. Earnest laborers are now doubtless quietly doing duty in it, unknown and unobserved of the world. But they are few in number. It is to urge others to enter, and assist in the labor, that this article is written. *Th. Gregg.*

HAMILTON, ILL.

PINE-APPLES are now imported to England from the Azores. The fruit is not only large and of excellent quality, but is conveyed in a fresh and perfect state. The first batch brought into Liverpool in the pots in which the plants had been grown was so fine, that the lot, upwards of fifty, was sold wholesale to one purchaser at 30*s.* each. Since then, some smaller lots have been sent to Liverpool and Hull; the last consignment realizing, according to size, from 12*s.* to 25*s.* each. Such fruit must, especially in the winter season, enter into formidable competition with our home-grown produce. Those not imported in pots were separately packed, each in a cradle; that is, the stem was made fast in a hole in the centre of a board of sufficient diameter to clear the circumference of the fruit: a corresponding piece was placed above the crown, and the two were connected together by thin laths, placed sufficiently far apart to allow a free circulation of air, and yet so as to prevent the fruit from being bruised. Thus packed, they came to hand in capital condition, though not so good as those which had been brought upon the plants. — *Florist and Pomologist.*

EARLY FRUITS AND VEGETABLES FROM DELAWARE. — I want to call public attention to the great success which is attending fruit-culture in the above State.

The "*little fruit State*," as she is sometimes called, possesses a wonderful capacity for raising every description of berry, fruit, or vegetable, not only excelling all other States in abundance, but in beauty, size, vigor, color, taste, earliness, and freedom from disease, to an extent little known or appreciated by those who have paid no attention to the subject.

The distinguishing features of Delaware are the warm, rich soil, and the early season. A large portion of it is from one week to ten days earlier than New Jersey; and, in the southern portions of the peninsula, some crops are harvested two weeks or more before they ripen at Philadelphia. To a gardener or fruit-grower, an advantage of this kind is worth thousands of dollars.

Sooner or later, the entire peninsula must become the great fruit and vegetable garden for early products for New York and Northern markets; and there are many excellent opportunities for those who like a life among fruits and flowers.

I will give you a few instances of success.

Apple-trees thrive as if they knew or desired no more favorable locality. Nothing can exceed the beauty of the trees, their healthiness, freedom from disease, vigor of growth, and production. Trees yield here from one to two years earlier than farther north; and, for early summer-apples, the prices received are almost fabulous. From a seven-year-old apple-tree seven dollars' worth have been taken, and from a twelve-year-old one thirty dollars have been realized. Large orchards are exceedingly profitable.

Pear-trees yield early, and in perfect luxuriance. All kinds succeed to admiration, and are troubled with no disease, worms, or leaf-blight whatever.

An orchard of four hundred dwarf pear-trees only four years old averaged, last fall, one basket per tree; and from one tree, three baskets. All were sent to New York, and averaged six dollars per basket, or twenty-four hundred dollars for the entire acre. Two pear-trees at Milford yielded the owner fifty-six dollars.

Peaches, which form the largest orchard-product of the State, are exceedingly profitable, whether grown on small or large farms. Some idea of the magnitude of this production can be gained from the fact, that, last year, the entire crop sent to market by railroad and water-communication reached the figures of a million and a hundred and eight thousand baskets by railroad, and seven hundred and fifty thousand by water.

James Fennimore of New-Castle County sold from an orchard of a hundred acres (ten thousand trees), in four consecutive years, eighty-seven thousand dollars' worth of peaches. This is a positive fact. Another case is true, where an orchard of less than two thousand trees yielded in one season four thousand dollars net profit.

Another, near Dover, which I myself saw in crop-time, yields from seventy acres a profit of ten thousand dollars yearly; the purchasers buying the crop on the trees.

There are other instances where a place of forty acres yields two thousand dollars per year; one of three and a half acres yields five hundred dollars per

year ; one of five acres, thirteen hundred dollars ; one of twenty acres yielding fruit to the amount of forty-three hundred dollars annually ; and one of five acres also where the income from the peaches is greater than from the rest of the entire farm of three hundred and fifty acres.

At Milford, between eight and nine thousand dollars have been cleared in three seasons from twenty-five hundred trees.

Orchards in the two lower counties range from five thousand to twenty thousand trees ; and one gentleman in Sussex County put out sixty thousand the last season. It is generally estimated that peaches will average at least a dollar per tree profit.

Strawberries and all kinds of berries promise to be a most prolific and profitable crop. Last spring, strawberries, shipped in small quantities to New York, brought a dollar and twenty-five cents and a dollar per quart. The price gradually declined to seventy-five cents ; then to fifty cents ; and forty cents was the lowest price obtained ; the last berries bringing the same prices which the earliest from Hammonton obtained.

From one-third of an acre at Dover, there were sold, net, the handsome little value of six hundred and eighty dollars. Three acres yielded two thousand dollars over all expenses. Four acres at Smyrna brought four thousand dollars, the purchaser doing his own picking. At Milford, four and a half acres yielded, one year, twenty-eight hundred dollars ; another, three thousand.

The secret of these prices is in *their good condition*. Pickers can pick till three or five o'clock, afternoon ; put their fruit on an express-train, and it is in Washington market before six the next morning, sweet, fresh, and uninjured. It is safe to say, for a series of years to come, twenty-five cents per quart will be as low as prices will go. With good cultivation, five hundred and a thousand dollars per acre will be common results for Delaware.

Currants and gooseberries have not been tried on a large scale ; but they thrive splendidly wherever grown in gardens. I think either will be a success, and give munificent returns.

Cherries are exceedingly early. From a single young Morello, eight dollars' worth have been taken. No disease has yet afflicted this tree here.

Apricots and plums will pay to raise, and hire a man to do nothing else but pick over the trees every day to keep them free from disease or insects.

Mr. James Lord of Camden, in 1867, had a small apricot-tree, about six years old, that bore four bushels of apricots. The first bushel was sent to a commission-merchant of New York, who gave him a dollar per quart. Had the entire fruit been carefully picked and marketed, the tree would have yielded a hundred and twenty-eight dollars.

The Concord and Hartford Prolific are the only grapes that will succeed. All others are failures.

Extraordinary results are accomplished in *vegetables*. One grower told the writer, that from three-fourths of an acre, *without manure*, he had taken two hundred and seventy-five bushels of Irish potatoes. Another planted Irish potatoes after spring-frosts, gathered the ripe tubers in June, planted the same ground to cabbage, and gathered the crop before frost came again in the fall.

Sweet-potatoes yield three hundred bushels, or a hundred barrels, and upward, per acre. Early potatoes bring a dollar to a dollar and fifty cents per bushel; and there are many farmers who clear every year the value of the land devoted to potatoes.

We saw one farm of two hundred acres, leased with buildings, on the half-share plan, which netted to the tenant, over his expenses, for his own portion, the good sum of ten thousand dollars; and the produce was solely grass, corn, potatoes, and wheat.

Tomatoes will eventually be a *big thing*. At St. George's, a grower sent to New York and Boston the tomatoes raised from an acre of ground; and the net result was seven hundred dollars. One grower near Dover realized four hundred dollars per acre for tomatoes sold at twenty-five cents per basket to the canning establishment: the tomatoes were described as being so thick, that it was impossible to pass over the ground without stepping on them. A case occurred at Camden of a man who cultivated an acre and a half on half-shares with the owner. The tomatoes were sold for twenty-five cents per basket; and at the end of the season he handed the owner two hundred and seventy-five dollars, or a hundred dollars more than the land was worth. Such results are remarkable, but are not safe enough to form estimates upon for large culture. Four hundred to five hundred bushels can be considered a good yield per acre. The first shipments realize, perhaps, five dollars per crate; then the price falls steadily to a dollar, and the majority over fifty cents.

Beets have been exhibited at an agricultural fair, weighing fourteen pounds; and four filled a bushel-basket. One thousand bushels of corn have been raised from fifteen acres; one acre, eighty-eight bushels; one hill, two stalks, together containing eleven ears.

There is no reason why all kinds of vegetables may not be grown in Delaware, and successfully supply New York two weeks earlier than they now do. Rhubarb and asparagus will pay finely. Cucumbers, beets, lettuce, spinach, cabbages, cauliflowers, egg-plants, onions, — all will do well.

Railroad transportation is easy and quick, and rates are fair. I can hardly see what there is to prevent the State from rising from her position, as one of the smallest in the Union, to one where she can claim eminence on account of her wealth and successful fruit and garden cultivation. — *Henry T. Williams, in Cultivator and Country Gentleman.*

Ben Davis *vs.* Bellflower. — The Bellflower Apple (frequently called the *Yellow* Bellflower improperly, the true name of that known as the *White* Bellflower being Ortley) is, to my taste, one of the very best of apples; and such too, I think, is the judgment passed upon it, with great unanimity, by public opinion. In a scale of five, it has fairly taken rank among the number ones.

Of the Ben Davis (synonyme Red Pippin and New-York Pippin), — an apple which of late is attracting much attention throughout the country, particularly in the West, — there is not so much uniformity of opinion. It certainly will not stand so high as number one: and the question is, rather, whether it should be

placed in the second or third rank; some giving it an even inferior position in the scale. I know of but one man who regards it as a first-rate apple; and his taste has not, perhaps, been properly educated. With my own knowledge of it, and with strong prepossessions in its favor as a market-fruit, I confess it looks like straining a point to call it a number two in quality. But let its true rank be what it may, — and tastes will differ, — the query I wish to present is, Shall we plant it in preference to the Bellflower and many other superior sorts? I have no hesitation in taking the affirmative of the proposition.

In some localities, the character of the Bellflower as a bearer is much better than in others, but barely tolerable in any. Its general character throughout the West is that of a very shy bearer, or no bearer at all under the age of fifteen or twenty years. I know a row of trees of this variety, in a locality well adapted to fruit generally, and in a not very strong soil, which have been eighteen years transplanted, and are near a foot in diameter, which have never yet borne a bushel of fruit each. The profit in growing such trees is hard to figure by any common arithmetic. The Ben Davis, in the same locality and in the same kind of soil, will pay for itself in seven or eight years from the nursery, and will thenceforward give uniform good crops as often as any other sort known. The question simply is, Shall we plant apples that will respond generously to our exertions and care, even though the quality be none of the best? or shall we confine ourselves to the superior sorts only, and meet with continual disappointment?

It is urged that we should strive to be leaders of public opinion, and educators of the tastes of the people; and hence should place before them, and ask them to use, only the best. True; but shall we bid them discard beef, and only advise the eating of meat when turkey and lamb are attainable? Shall we have them discard Concords, and only partake of grapes when Muscats and Black Hamburgs are to be had? Perhaps the time may come, as the millennium approaches, when Muscats and Hamburgs, and turkey and lamb, will be as plentiful as Concords and beef; but it is not likely to be in our day and generation; and, until there be some sign of its approach, it would seem to be the part of common prudence to plant with reference to the attainable. Morello cherries, acid as they are, make much better pies and tarts than any quantity of Eltons and Belle Magnifiques *in prospect*, and are more highly relished by the inner man.

I would therefore urge the planter of apples, as well as of all other fruits, to make selection of such sorts as will soonest bring a compensating return. Let the questions of quality, size, color, and shape, be subordinate ones. Instead of adopting this rule, very many planters make quality the first consideration, holding aloof the questions of productiveness and adaptability. Hence so many failures and so much disappointment in fruit-culture. They are told that the Bellflower is a very fine apple; that the Baldwin, Rhode-Island Greening, and Roxbury Russet, are ditto (I write from a Western stand-point). These statements are believed; and they are true to the letter. But the whole truth had not been told. They plant in the light of the knowledge they possess; and disappointment, vexation, and pecuniary loss, follow. Had I planted only Ben

Davis in my little orchard of sixty-five trees ten years ago, instead of some twenty sorts, many of them better apples, it would have been a little fortune to me ere this: as it is, I annually gather few apples, and many sorrows.

Again: as a general rule, the Ben Davis will outsell the Bellflower, and almost any other apple, in most of our great markets. This is chiefly owing to its very fine appearance. The million will choose the handsomest first, and take quality on trust. But says one, "Shall we thus defer to the vulgar taste? Ought we not rather aim to educate that taste up to a higher standard?" Ah! but how? Shall we deny to all the elementary branches of an education because they cannot appreciate the higher ones of philosophy and the classics?

"Excelsior" should be the motto of every fruit-grower; and our attention should be especially directed to the search for those sorts, which, with the highest attainable quality, will give the greatest amount of production. And, until the higher qualities can be obtained at a much less cost of time and trouble, I shall endeavor to make the most of such apples as the Ben Davis, and leave the Bellflower and similar sorts to those who are willing "to labor and to wait."

And when the apple is produced, which, to the productiveness, hardiness, beauty, adaptability to all soils and conditions, keeping and cooking qualities, of the Ben Davis, are superadded the fine flavor and aroma of the Bellflower, I shall hail it as one of the richest gifts of Pomona. And I have a living faith that such a treasure is in store for us somewhere in the no distant hereafter.

HAMILTON, ILL. *Th. Gregg.*

GRAPES. — Last winter was pretty severe in the results on my grapes, which were planted close up against a fence, protecting them from the west and north, and giving them a fine southern exposure. The Delaware and Iona, nearest to the house, were, all winter, subjected to constant pourings of slops and hot water from the kitchen, thrown by heedless servants, and which it was quite out of my power to prevent, as I had rented out all the lower part of the house: therefore, when spring opened, I had settled my mind to the fact that these two were dead beyond hope or remedy. The remaining vines embraced Herbemont, Concord, Rogers's No. 19, and Rebecca.

Herbemont and Rogers's showed out well, and are doing magnificently. Rebecca, after a violent attack from some unsparing foe, has again put forth, and is coming on now finely. To my astonishment, Concord was dead down to the very roots, — dead as Marley, or his ghost either; and, to my equal astonishment, Delaware and Iona have put up again from the roots, and make good headway for their old place. I don't discuss the why and wherefore, but simply state my bit of experience with the famous and puffed-up Concord, — "the grape for the poor man and the million." I confess I have never discovered why it should so be called; for my experience, either buying or selling, makes me know that the laboring and middle classes buy and eat in the fruit line none but the best the market can afford, and pay good prices for it. It may be our good friend Husmann can account for the failure of his favorite upon the idea that the climate of Maryland is not quite as good as Missouri. *W. H. R.*

To the Editors of "The American Journal of Horticulture."

A YANKEE BOY IN PRAIRIE-LAND. — Permit me to give you a statement of facts to illustrate what a Yankee boy can do in this great prairie State of the West, when guided by a proper energy, determination, a sound judgment, and a good share of horticultural knowledge.

Mr. Moses Hammond, a citizen of Massachusetts, emigrated to and settled in Hancock County, Ill., in the year 1846. Industrious and frugal, and possessed of only very moderate means, he educated his boys in the practice of his own habits of economy and industry. His eldest, Asaph C., was, when he became a denizen of the Sucker State, but sixteen years of age. He remained with his father, assisting in the cultivation of a new prairie-farm, until 1855, when he married, and commenced life for himself by settling on a tract of a hundred and thirty acres of rolling prairie-land in the neighborhood. On this he began to build up for himself a home and a fortune by adopting a line of policy then, and even now, but little practised by new beginners in the West. He planted an orchard.

It is not my purpose to follow him in his course of tree-planting for these dozen years since, but rather, in a summary way, to give you and your readers an idea of what he has accomplished, and the results.

1. To begin with an orchard of six hundred apple-trees, planted in 1856 and 1857. This orchard, now eleven and twelve years transplanted, has been in bearing for the past five or six years, and has now probably paid expenses of cost and culture. Although many of the varieties are unprofitable, being more or less unproductive, yet a large number of the trees are capable of producing from five to eight bushels of fruit to the tree. Many of his selections in this first orchard, owing to his inexperience, were unhappily made; but subsequent information and experience have enabled him in a great degree to rectify these mistakes. His leading sorts, and those which have given the best satisfaction, are, —*for winter*, Ben Davis, Winesap, Rawle's Janet, Pryor's Red, Westfield Seek-no-farther, Peck's Pleasant, Rome Beauty, Hubbardston Nonesuch, Ortley; *for fall*, Maiden's Blush, Fall Wine, and Snow (or Fameuse); *for summer*, Red June, Benoni, Red Astrachan, Summer Queen, and American Summer Pearmain. These are generally productive and valuable; and some of them are superior to any other varieties for market-fruits.

2. In 1861, he added another orchard of seven hundred apple-trees. These are largely of the Ben Davis and Winesap varieties: some new sorts were added, however; among which is the greatly-extolled King of Tompkin's County. This orchard has borne two or three partial crops; and, as in the older one, the Ben Davis takes the lead.

3. In the spring of 1866, one thousand more apples were planted, — mostly Ben Davis, Winesap, Jonathan, and Hubbardston Nonesuch. From this fact, we may judge it is Mr. Hammond's experience that these four sorts are most remunerative.

So that, at the present writing, Mr. Hammond has an orchard, or rather three different ones, containing twenty-three hundred apple-trees, and embracing about ninety varieties.

But his operations have not been confined to the planting of apples alone. In the mean time, he has planted, —

4. Of pears, say about a hundred trees, of eighteen or twenty sorts, most of which are now bearing fruit. These are about equally divided between the standards and dwarfs. Results favorable.

5. Of peaches he has planted three hundred, of different ages ; about half of them being of the budded varieties, and the remainder choice seedlings. Peaches in his vicinity do not usually afford a crop oftener than each alternate year ; the seedlings uniformly hardiest and most productive.

6. His plum-orchard only numbers from twenty to thirty trees, mostly of bearing age. Results variable.

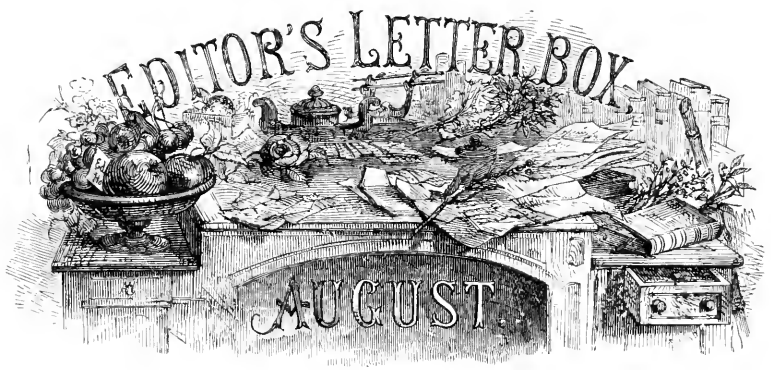
7. Cherries. Mr. Hammond has planted of these quite extensively. To his earlier plantings of two hundred trees in all, mostly Early Richmonds and English and common Morellos, he has added this spring eight hundred more Early Richmonds. These are generally top-grafted on the Morello ; his experience being to the effect that those thus worked are more productive than if on their own roots. This question, however, is still an open one in Illinois, and even in his own neighborhood.

8. Two acres of grapes, — twenty odd sorts, — mostly Concords, Clintons, and Catawbas, and three acres of other small fruits, — blackberries, Lawton ; raspberries, Purple-cane and Doolittle Black-cap ; gooseberries, Houghton ; currants, Red Dutch and White Grape ; and strawberries, Wilson's Albany, — complete the list of fruits.

9. And, ninth and lastly, this enumeration of horticultural operations would be incomplete without a mention of the one important fact, that this fine fruit-farm — without doubt the finest in the county — is enclosed and subdivided with an Osage orange hedge-fence of over three miles in length, most of which affords a safe protection against horses, mules, and cattle, or the most diminutive porker of the prairie land-shark breed, — a species of which there are yet some examples extant.

What Yankee boys can do on the sterile sands of New Jersey, or among the golden sands of El Dorado, let others tell ; what they can accomplish within their rock-bound coasts or on their native granite-hills, you may best judge : but what one *has done* whose intellectual nature has been expanded by the free air of the prairies, the above unvarnished statement will show. *Th. Gregg.*

HAMILTON, ILL.



THE Editors of "The American Journal of Horticulture" cordially invite all interested in horticulture and pomology, in its various branches, to send questions upon any subject upon which information may be desired. Our corps of correspondents is very large, and among them may be found those fully competent to reply to any ordinary subject in the practice of horticulture. Any questions which may be more difficult to answer will be duly noticed, and the respective subjects fully investigated. Our aim is to give the most trustworthy information on all subjects which can be of interest to 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.

GREENHOUSE PLANS, Newton, Mass. — A series of structural articles on greenhouses will soon appear in our pages, which will supply your wants, and answer all your questions.

J. M., Shelbyville, Ind. — Your plant is *Anemone Pennsylvanica*. It is a very fine plant, and does well in the garden.

N. T. H., Abington. — No. 1 is *Lilium umbellatum*. No. 2 is *Lilium Martagon album*, or white Turk's-cap Lily. Leaves of "plant with blue blossoms the last of May" not received.

F. M. B., Vineland, N. J. — Have sent insects to our entomologist for identification. We do not know "Schuyler's Large Apricot." Tell us what you can about it.

IMPORTER, New York. — The duty of thirty per cent levied on imported trees, seeds, plants, and shrubs, is a specimen of unwise legislation and taxation. It amounts, as you say, almost to a prohibition. Every tree, plant, flower, or seed introduced (except, perhaps, Patent-office importations under the old *régime*) is of direct benefit to the country, and such importations should be encouraged in every way. The Massachusetts Horticultural Society, by a committee of some of its most influential members, have petitioned for a repeal of that duty; and a clause in the new tariff will exempt such importations not intended for sale. This is well as far as it goes; but we are in favor of the largest liberty in this respect, and believe that all importations of trees, shrubs, plants, and seeds, should be admitted duty free, on the ground that a contrary course is prejudicial to the true interests of horticulture.

SPRING BULBS, Pittsfield. — Plant crocuses: they will give you full satisfaction. Once planted in good garden-soil, they require no further care, but grow better year by year. For varieties, take Caroline Chisholm for white, Cloth-of-Gold for very early yellow, Mr. Vraght for dark blue, Samson for light blue, Large Yellow Dutch for later yellow, Scotch for very early white.

These are all very hardy and very good. If greater variety is wanted, add Ida Pfeiffer, white striped with mauve, — a very beautiful kind; Othello, dark purple; Albion, blue and white; and Sir Walter Scott, lilac-striped.

We hope to give an article on crocus-culture in our October number.

C. O., North Vassalborough, Me. — In the last number of "The Journal of Horticulture," one of your correspondents speaks of having the "Thomas" Plum. I have several times attempted to procure that variety, but without success. Can you inform me of a nursery where I can find it? — If any of our subscribers have the "Thomas" Plum, they will confer a favor by making the fact known.

WESTERNER. — Will you please inform your readers which of all the varieties of pears show the best crop of fruit this year? As we had a very hard winter, and many sorts were injured, it seems to me that it would be well to know which are the most hardy. — It is true that we not only had a very peculiar and hard winter, but that the previous summer and autumn were such as to leave the trees in bad condition to withstand the winter. It is true that many varieties of pears show no fruit this year, and most others will not yield half a crop. Those that promise most with us are Doyenné, Boussock, Buffum, Swan's Orange, Belle Lucrative, St. Michel Archange, Vicar of Winkfield, and Paradise d'Automne.

A. S., Easton, Penn. — Your plant is *Lupinus polyphyllus*. It will ripen seed freely. There is a white variety. Japan lilies and *Lilium auratum* do very well in pots, and, if well cared for, often do better than when grown in the border.

THE following communication replies to a host of questions, the burden of which is, "How can I best destroy the rose-slug?"

Editors of "The American Journal of Horticulture."

"Ere the next number of the Journal is before the people, no doubt that great pest to rose-growers, the slug, will have commenced his work of destruction, rapidly converting the beautiful leaflets of our pet roses into unsightly skeletons, depriving many florists of their chief joy.

"I find many do not yet know that the destroyer may be effectually checked and routed by the use of white powdered hellebore, which may be procured cheaply of most druggists. Apply to the foliage infested, while the dew is on, with a common dredging-box; remembering to cleanse the box well before using for other purposes, as the hellebore is poisonous. "N. L. WOOD.

"SMITHFIELD, O."

Whale-oil-soap or tobacco-soap are both efficacious for this purpose.

MRS. F. W. W., Princeton, Ill. — Your plant is *Euonymus Japonicus;* and, being the green-leafed variety, is hardly worth growing as a house-plant. The flower is insignificant. It would probably prove a hardy shrub with you, and certainly could be wintered in the cellar. It has no resemblance to a camellia.

R. W., Troy, N.Y. — *Yucca gloriosa* is *not* hardy. Grow it in a tub or large pot, and winter it in the cellar. The tender Yuccas are very ornamental if placed in effective situations in neat tubs.

Y. filamentosa is perfectly hardy, and makes a splendid mass. We are experimenting with some others, and will report in due season.

E. A. F., Meadville, Penn. — Letter mislaid. Your plant is a *Stevia*. It has none of the habit of, or any resemblance to, a *Habrothamnus*.

CINCINNATI. — We have understood that Col. M. P. Wilder had originated a new strawberry that promised well. What can you tell us about it? — We hope to tell you all about it soon, and give you a cut of it too. He has two valuable seedlings not yet named. We hope one at least of them will receive the name of the originator.

H. C., Hammonton, N.J. — Is the Frogmore Late Pine Strawberry a valuable variety for general cultivation? If so, where can plants of it be had? — This variety is of no value for market-purposes. The plants burn to death in summer, and do not stand the winter well. It may possibly do for amateur cultivators.

THERE is reason in the following letter, and the writer's experience agrees with our own. A question as to the possibility of cultivating the harebell (*Campanula rotundifolia*) is also answered. This plant is very delicate and beautiful, of easy culture, and should be generally grown. As to the gentian-seed, we shall trust to hear further reports. In our neighborhood it is very difficult to get seed, as the capsules are generally destroyed by insects.

Editors of "The American Journal of Horticulture."

"I fear your Madison correspondent will be disappointed at the result of her horticultural experiment of transplanting some 'strong roots' of *Gentiana crinita*. Here this is certainly a Biennial plant. I have never known one to flower a second season. Is it easy to raise this from seed? I have tried several times without success; sowed seeds last fall, and the young plants have come up abundantly. They are very small, and look tender. I propose to give them a little shade while small, and hope thus to save some of them. To my eye, the flower is more delicately beautiful when growing in partial shade. This is also the case with *G. saponaria*.

"I have often wondered why the harebell (*Campanula rotundifolia*) is not introduced to the flower-garden. I have never seen either seeds or plants advertised in any florist's catalogue. It thrives with me, doing best in rather poor soil; is perfectly hardy against both heat and cold. I have plants now that have stood for seven or eight years, increasing in vigor each year. It is a profuse bloomer from June to the end of October. All who have seen it will acknowledge it to be a gracefully-beautiful plant, aside from its lovely flowers. It is such a favorite with me, that I have set it in many places by the roadside, and in retired nooks in the woods. It was not a native of this town. My original plants came from Newburyport. "M. P.

"CONCORD, MASS."

M. W. B., Worcester. — It is not uncommon to have two flowers of *Lilium auratum* on a stem. In England, three stems bearing forty flowers have been grown from one bulb. The specimen sent has very large flowers; and the increase of the pistils to three, the stamens to nine, and the petals to seven, shows an abnormal state, and, as you rightly suppose, a tendency to a double flower. Such a change, however, would be no improvement. Of all double flowers (which are, botanically, monstrosities), a double lily is especially ugly; and great size would be a poor exchange for the loss of simple beauty, and elegance of form, which would be the invariable result should *Lilium auratum* become double.

ORCHARDIST. — Is there any better early cooking-apple than the Red Astrachan? — If there is, we have yet to see it. It is always fair, and of good size; is just acid enough to relish when cooked.

STRAWBERRY-CULTURE IN ILLINOIS.

Strawberry-Culture has now assumed such proportions, that it has need of science to enable it to guard against the accidents of the seasons. While it was a mere art, the crop was subject to varied results; but, when we bring science to aid this art, we produce large annual crops with as much certainty as the most favored staple of the farm.

Thus far, the Wilson is the only variety that has given universal satisfaction in this State for market-planting.

Planting in rows is the more common mode; but the true system is, doubtless, to cultivate in hills, and renew the plantation after three or four crops. The row system has been fully described in the Journal, and I will discuss that of hills.

Where we cannot have the land tile-drained, it should be back-furrowed two or three ploughings, so as to lay it up in beds two rods wide: this will give pretty fair surface-drainage, and the bed will have a good depth of tillage. The plants may be set, at any time when the weather is favorable, from April to first of September; but, on account of the liability to drought,

the last of April, or first part of May, will be found the best time. The beds are laid off in rows two feet wide, and the plants set a foot in the row, leaving a strip of five feet at each dead furrow for the purpose of keeping open the drains. This will give to each bed fourteen rows, and require eighteen thousand four hundred and eighty plants to the acre.

Some may desire to plant at two feet, so as to work the plants both ways; but to this is the serious objection, that the cost of mulching is double for the same number of plants.

Any of our prairie soils will grow the strawberry; but a sandy loam is the best, next a clay loam, like the most part of Central Illinois. In the preparation, trench-ploughing is better than subsoiling: and the land, if not naturally rich, should be manured; for the strawberry requires a genial soil.

In setting the plants, the roots may be shortened, and set with a common steel dibble: this will save a large amount of labor, and the plants do better than set in the old way. During the first year, the plants must be kept clear of weeds, and the ground stirred with a skeleton plough, such as is called at the West a ball-tongue, or a Mapes's subsoil-lifter. Wheatley's garden-plough is also useful if the land is free of rubbish. In weeding, L. Rose's wheel-weeder or the Hess garden-weeder will save a large amount of work. These cost about six dollars each, and should be in the hands of every man who has a garden-patch.

For mulching, prairie hay is the best; but straw and sorghum begasse can be used. The slough hay is the best of the prairie hay, and is the cheapest: its cost here is four to five dollars a ton, and four tons are used to the acre. This is evenly spread on after the ground begins to freeze, and is not removed until the crop is picked.

When the plants are grown in rows, the mulch is turned off the plants, and placed between the rows: this allows the weeds to make full headway; and we soon have the rows filled with weeds and blue-grass, which are difficult to eradicate, especially the latter. In this new hill-system the mulch is not removed from the plant, but a small opening made with the fingers to allow the plant to come up through it. The operator gets down on his knees, moves along the row like an onion-weeder, and makes a small parting with his fingers just over the plant. It is necessary

to go over the patch two or three times to see that the young plants are not smothered, or that the opening is not so large as to admit of the weeds coming up through also. This is a very essential point, and one to which the cultivator should give his particular attention ; for upon it will depend, to a great extent, his success. The covering, being three or four inches deep, will keep down all weeds ; and the roots of the plants, being in a rich, well-drained soil, will have the full benefit of it, and the result must be a large crop. If the season is wet, the superabundant water is drained off ; and, if dry, the mulch holds a reserve of moisture. In this condition, the strawberry has what it most needs at the time of maturing the fruit, — a moist soil. Under the old method, a drought was always feared by the strawberry-grower ; but now he may bid defiance to both drought and heavy rains. One result of this mode of culture is to make the crops a few days later : but the whole crop is sure to mature fully, and the last picking will be nearly equal to the first ; the season will also be extended some days. No heavy rains can damage the fruit, either by rotting it or making it too dirty for market, as is the case when the mulching is taken off the rows. In wet seasons, the loss by rotting is large, by reason of the trusses of fruit resting on the cold, wet soil ; but, on the prairie hay or straw, the drainage is not only perfect, but is a warm bed for the fruit. The leaves mainly protect the fruit from the sun ; and it is ripened in a natural condition, as though in an old meadow, the place where the sweetest berries always grow. The result of this mode of mulching is, larger berries, a maturing of the whole crop, and richer fruit. It costs less to pick fruit thus grown ; and good pickers will make their hundred quarts in eight hours, while common pickers will average forty quarts in the usual time of picking ; that is, from eight to eleven, A.M., and three to five, P.M., — the most suitable hours for picking of the strawberry. We must also consider the increased value of large, well-grown fruit.

After the crop is harvested, the mulch can be taken off by the aid of a sulky wire-tooth rake, and should be put in stack or under cover, and the ground kept clear of weeds, and stirred, as recommended, the first season.

At the beginning of winter, the mulch is returned ; and it will require about a ton additional to the acre.

I saw a bed that was making its third crop ; and, judging from appear-

ances, it will make another: but it is probable that three crops will be the most profitable.

In renewing, the field can be turned under, and new plants set the same season, and they will turn a very fair crop; but in this case it would be well to add a fair supply of barnyard-manure.

With the heavy mulch no runners can take root, and require no looking after; but, after the mulch is taken off, all runners are to be treated as weeds.

If the plants are set in rows both ways at the distance of two feet, they may be worked at less expense per acre, but not per bushel; and that, after all, is the main point. In one case, four tons of hay will cover a given number of plants: in the other, it takes double that quantity.

What we aim at is to produce annual crops at the least cost; and I think the plan above set forth is the best yet devised. *M. L. Dunlap.*

CHAMPAIGN, ILL.

THUJOPSIS DOLABRATA.

THIS beautiful evergreen — by far the most beautiful of its tribe — has been put to a more severe test during the past winter than ever before. We have, for four or five years past, had two specimens, planted near a mass of *Rhododendron Catawbiense*, but not near enough to receive any protection from it. Last winter, the rhododendrons were severely injured, being killed in some cases half-way to the ground; while the two thujopses escaped with very slight marks of the winter. One of them was browned at the top, while the other was not injured in the least. A plantation of *Cupressus Lawsoni*, in a sheltered place near by, suffered far more; the tips of the foliage being killed. Indeed, the *Thujopsis dolabrata* came out of the winter in a better condition than some young hemlocks in the neighborhood, some of which were killed outright. *F. Parkman.*

THE FIRE-LILY.

Lilium bulbiferum, and its variety *L. umbellatum*, are sometimes called by this name, which the flaming orange-crimson of their flowers well merits. It is surprising that this, one of the most splendid of lilies for garden decoration, should be so little known in this country. In Europe, it is greatly prized, though it has been in cultivation for many generations. Innumerable varieties have been raised from it, differing in shade, size, height, and somewhat also in the time of blooming; though all bloom during June and July.

The flowers of the fire-lily are borne in large clusters at the top of an upright stem, often to the number of ten, twelve, or more. Each flower, when grown in good soil, is five inches or more in diameter, and set erect on the stem, like a cup. Some varieties will reach a diameter of six inches. Sometimes the color is a bright orange, passing into yellow towards the base of the petal: in other varieties it is deepened to a vivid orange-crimson, very brilliant when the flower first opens. Usually there are small black spots on the lower half of the petal. When from six to twelve bulbs are set in a clump, a gorgeous mass of bloom is the result.

No lily is of easier cultivation, more hardy, or more healthy. It will thrive in common garden soil enriched with well-rotted manure; but it is always grateful for a liberal admixture of peat or leaf-mould. Unlike some other lilies, it does not, however, exact this treatment, but will do very well in common loam if not too cold and heavy. The autumn is the best time to plant it; and in the May following it will push its strong, fleshy shoots up through the soil with such force, that they will lift, or push aside, any small stone in their way. These shoots, when they first appear, are of a deep green, often shaded with a dark purplish hue, forming a dense head of undeveloped leaves regularly imbricated, and reminding one, by its shape, of a double zinnia. The leaves, when completely formed, are of a deep, shining green, densely set along the stem, which is from two to four feet high, crowned in the blooming season with its gorgeous mass of flowers.

This lily is the same sometimes called *Lilium fulgens*. The number of

named varieties is considerable, and some of them are scarcely distinguish-

able from others by an unpractised eye. Among the best are *L. umbellatum*

(*fulgens*), *incomparabile*, *atrosanguineum*, *erectum*, *immaculatum*, and *grandiflorum*. All of these, with various others, are now in bloom before me, as well as a bed of mixed varieties, containing some equal to the best-named sorts.

The lily sold in this country under the name of Groom's Hybrid is in fact no hybrid, but merely a variety, not remarkably good, of this species.

L. bulbiferum differs from *L. umbellatum* only in having a smaller head of flowers; the former being the original species, the latter the improvement on it. *F. Parkman.*

NO MORE GRAPE EXPERIMENTS.

"I SUPPOSE now you will not bother yourself any longer trying to raise grapes in New England," said a friend to us last September, as we stood examining our mildewed and frost-bitten vines and unripe grapes. "You see that your experiments are a failure; for, what the mildew and rot spare, the early frosts take. You had better give it up."

"Of course we shall give it up," we replied. "We shall abandon grapes, and raise something that is sure and certain. We shall grow potatoes, which have never yet rotted in this part of the world; wheat, which is never affected by rust, mildew, or the chinch-bug; apples, which the curculio never touches; plums, on which the black-knot is never seen; strawberries, whose foliage never burns; and peaches, which the yellows never destroy. But grapes have mildewed two years with us lately, and been cut off by the frost one season; and therefore we shall abandon them entirely."

Our friend went off with a puzzled expression of countenance; but we did not have to explain to him that we spoke ironically, and that we shall not abandon grape-culture until we meet some worse results and more formidable obstacles than any that have yet appeared.

SOME NOTES ON THE CONIFERÆ OF CALIFORNIA.

1. *Pinus contorta* (Douglass). — The twisted-branch pine. A small tree, five to twenty feet, but averaging only from five to fifteen feet. Bark reddish, and nearly smooth; branches almost at a right angle with the main axis, and generally from five to seven in a whorl; leaves of a dark vivid green, and somewhat succulent (Bolander, in *Proc. Calif. Soc. Nat. Science*, vol. iii. p. 227). Specimens of the cones and shoots, with leaves, were sent to the London Horticultural Society's Herbarium in 1825–7; but no young plants were raised (Loudon's *Arboretum*, p. 2292). Cones scarcely two inches in length, ovate when closed, but nearly globose when expanded. North-west coast, near the seacoast, as far as Cape Disappointment (Torrey, *in Bot. Pacific R. R. Route*). It seems to prefer moist ground and swampy situations; and, if introduced, might thrive near the sea, where our pitch-pine would not readily grow.

2. *P. insignis* (Douglass). — The Monterey pine. "This tree," says Loudon, "is well named *insignis;* its general appearance being indeed remarkable, and totally different from that of any other species. The leaves are of a deep grass-green, thickly set on the branches, twisted in every direction, and of different lengths" (*Arboretum*, p. 2265). It covers many thousands of acres near Monterey and Carmelo, forming extensive forests, the height of the trunk being sixty to a hundred feet; the outline of the tree being very irregular, consisting of only a few rigid spreading branches; leaves dense, of a vivid green color; cones persistent; bark thick and chinky. The wood, though extremely resinous and rather coarse-grained, is excellent for planks, and for floors and bridges (Bolander, *op. cit.*). There seem to be several synonymes, according to Loudon and others; but the opinion is unanimous, that the veritable species which Douglass designated as *insignis* is a very handsome tree, and very hardy.

3. *P. Lambertiana* (Douglass). — Lambert's Pines, plate 34. A stately and beautiful tree, not excelled by any in California for its timber. When the trunk is wounded or burnt, a sweet substance exudes; and from this circumstance it is familiarly known as the *sugar pine* (Torrey, *op. cit.*). According to Douglass, the trunk of this pine grows from a hundred and fifty

to two hundred feet in height; is unusually straight, and destitute of branches about two-thirds of its height: the leaves are similar to those of our *white pine* (*P. strobus*), are rigid, and of a bright-green color; the cones are pendulous from the ends of the branches, in form not unlike those of the white pine; the seeds, however, are large, sweet, and pleasant to the taste (Loudon, *Arboretum*, p. 2289). It occurs in groves with *P. ponderosa* in the damper localities of California (Bolander). It is considered "the giant of the forest, with cones twelve to sixteen inches in length, and eleven inches in circumference in the thickest part" (Hooker, *Flora Boreali Americana*, vol. ii.). Gordon (*Pinetum*, p. 228) speaks of it as quite hardy; and Mr. Hunnewell confirms the general opinion of its extreme hardiness, and adaptedness to our own ornamental plantings, recommending its use.

4. *P. muricata* (Don). — In manner of growth, this species resembles the *P. insignis* very much. The leaves always in pairs, and silvery on the lower surfaces; the cones scarcely two inches long, and persistent for a number of years. On the plains quite near the seacoast, from the River Albin to Mendocino City (Bolander). According to Gordon, it is a very distinct species, and was first discovered by Dr. Coulter, in Upper California, at an elevation of three thousand feet, and within ten miles of the seashore. Its growth is straight, but rather stunted; seldom exceeding forty feet in height. Mr. Hartweg found it growing on the declivity of the mountains, within two miles of the seashore, intermixed with the *P. insignis;* and it was again observed by Mr. Jeffrey, on the Lisklyon Mountains, in a moist soil, at an elevation of seven thousand and five hundred feet. It is known under the synonymes of *P. Murrayana* and *P. Edgarriana;* and is the "obispo," or bishop's pine, of the Californians (*Pinetum*, p. 175).

5. *P. ponderosa* (Douglass). — The yellow pine. This is one of the species indicated by H. H. Hunnewell, Esq., as well adapted to artificial planting, on account of its hardiness. "In its habit of growth," says Lawson, "it seems to surpass all others of the genus for strength and luxuriance; its branches few, regularly verticillate, horizontal, and pendulous with age." (*Manual*, p. 355). It was discovered by Douglass, and sent to England in 1826. The timber is of great solidity and weight, so as scarcely to float in water. According to Bolander, it seems to be widely distributed in California. Gordon tells us that it grows upwards of a hundred feet in height,

and with a tall trunk free from branches to the height of thirty or forty feet (*Pinetum*, p. 205). Its long, twisted, rather broad and flexible, sharp pointed leaves, thickly set on the branches, and straight, ovate cones, must render it conspicuous either in the young or adult tree.

6. *P. Sabiniana* (Douglass). — The digger-pine. This is one of the species called in California the *white pine*, and remarkable, says Dr. Torrey, for its very large, heavy cones, the scales of which are produced into a long, incurved point (*Botany in Pacific R. R. Survey*, vol. iv. p. 141). The scales of the cones, Dr. J. M. Bigelow tells us (in the above work, p. 25), are armed with large upturned, hooked spurs. The nut is said to be large, and fit to eat. This tree is flexible and crooked; the foliage thin, and of a light green, giving it a very peculiar aspect. As to the value of its wood, there are very contradictory assertions: some call it excellent, and others denounce it as useless (Bolander). A figure of the leaves and of the singular cone may be seen in Loudon's *Arboretum*, p. 2247; and, judging from his figure of *P. Coulteri* (Don), it would be inferred that the two species were identical; although the latter is said to be a stately tree, rising to the height of eighty to a hundred feet. The difference may perhaps be, however, owing to the particular situation in which they were found; the soil influencing greatly the growth of these forest-trees.

7. *P. tuberculata* (Don). — Loudon speaks of this tree as of a hundred feet in height of stem, with oblong cones, of threes in a cluster, of a tawny-gray color, four inches long, two and a half broad, the scales wedge-shaped, dilated at the apex, quadrangular, truncate with a depressed umbilicus, larger at the external base, conical, with an elevated apex; quoting from Don in *Linnæan Transactions:* while Mr. Bolander calls it a small tree, as occurring in his Explorations, from twenty to thirty feet high, retaining its lowest branches, and they spreading out horizontally (*Proceedings, l. c.*). A tree of slow growth, says Loudon, and seldom attains more than thirty feet in height, with a trunk eight or ten inches in diameter; found growing by Mr. Jeffrey at an elevation of five thousand feet; in several instances, with the cones persistent, numbering as many as twenty whorls of cones, and thus indicating the fruit of as many years (*Pinetum*, p. 213).

8. *Cupressus macrocarpa* (Hartweg). — The Monterey cypress. This fine and singular species was found by Mr. Hartweg in Upper California,

who, noticing its unusually large cones, gave it the specific name. Gordon, in his *Pinetum*, p. 65, claims it as identical with his *C. Lambertiana*, raised from seeds distributed by Mr. Lambert among his friends; but the country from whence they came was unknown. The tree-seedlings were recognized subsequently by Mr. Gordon by comparison with a specimen received from Prof. Fischer, who considered it a new species from California. "It is one of the finest cypresses yet introduced, on account of its beautiful bright-green aspect, its great size, and hardiness. Mr. Hartweg found it forming a tree sixty feet high, on the wooded heights near Monterey, in Upper California, and with a far-spreading, branching, flat top. It is hardy, and will grow in almost any kind of soil which is not very poor" (*Pinetum*, p. 66). According to Mr. Bolander, it seems to be very variable; on granite rocks, slightly disintegrated, only six inches in height, bearing perfect cones. In a depression associated with *Pinus muricata*, from ten to fifteen feet high, full of cones. At a distance of three or four miles more inland, it made a large grove of trees of great beauty, size, and perfection; the average height from forty to sixty feet. At this point, these trees were daily enveloped in a dense fog (*Proc., l. c.*). A tree of such beauty and variableness would be a very desirable addition for either border or pot culture.

9. *Librocedrus decurrens* (Torrey). — This is the California white cedar, and is a handsome tree. The largest specimens noticed by Mr. Bolander were from forty to sixty feet high, and two or three feet in diameter. A full description with an excellent figure may be found in *Plantas Fremontiana* (*Smithsonian Contributions*, vol. vi. p. 7, tab. 3); in which, however, the cones, which are represented as erect, should have been drawn as pendulous.

10. *Taxus brevifolia* (Nuttall). — A small tree in California; and though similar to the common yew of Europe, yet considered as distinct (Torrey). A handsome tree, says Mr. Bolander, attaining the height of twenty or thirty feet, with extremely slender and drooping branches. The yew of the Middle and Eastern States (*T. Canadensis*) is a mere bush, as is well known; while the *short-leaved* yew of the North-west Territory and California, like its type the *T. baccata*, is a stately tree of sometimes sixty feet in height.

11. *Torreya Californica* (Torrey). — The foliage of this fine evergreen

is very much like that of the spruce; but the fruit is very different in ap pearance from any of the American conifers, resembling to a remarkable degree a nutmeg, and suggesting Dr. Hooker's appellative of *T. myristica* (see *Botanical Magazine*, plate 4780). The tree grows about fifty feet high, with slender, drooping branches, and a thin, light foliage; the bark smooth; the wood hard and firm (Dr. Bigelow, in *Botany*, &c., quoted above). Noticed in several parts of California by Mr. Bolander, but generally dispersed. Belonging to a group of cone-bearing trees, celebrated for its timber, and excellence of wood. The *Torreya*, or California nutmeg-tree, may be found of value for artificial plantations.

12. *Sequoia sempervirens* (Endlicher). — The redwood. This magnificent tree is only rivalled by the gigantic cypress, *Sequoia gigantea* (Torrey). The value of these majestic living organisms in the features and conditions of the regions they inhabit is well considered by Mr. Bolander, who asserts that a great benefit derived from the *redwood* forests is the power they possess in *condensing* fogs and mists. A heavy fog is always turned into rain, wetting the soil, and supplying springs with water during the dry seasons. It is my firm conviction, that, if the redwoods are destroyed, — and they necessarily will be if not protected by wise action of our government, — California will become a *desert* in the true sense of the word. It remains to be seen whether we shall be benefited or not by the horrible experience such countries as Asia Minor, Greece, Spain, and France have endured by having barbarously destroyed their woods and forests. No power on earth could restore the woods of California when once completely destroyed (*Proc., l. c.*, p. 232.) *John L. Russell.*

ASPARAGUS.

Owners of asparagus-beds should be careful not to continue the cutting too long, especially if it be the first year of cutting from the bed. Old beds will stand it better; but the longer it is continued into summer, the more the plant is weakened. We make it a rule to stop as soon as green pease come. It is better not to cut at all until the third year after planting; and, if the plants were weak, not until the fourth year. This crop should have plenty of manure.

TREATMENT OF NEWLY-IMPORTED ORCHIDS.

As soon as the plants are unpacked from the cases, they should be placed in a shady part of the orchid-house; not at once in great heat, but where the temperature is moderately warm, and where they will not be exposed to draughts of air; for, having been so long confined in close cases, any immediate exposure to atmospheric changes would prove injurious.

It is a good plan to cover them with an awning, in order to guard against too much light.

It is not best to unpack the cases in the orchid-house: for, almost always, cockroaches will have found their way into the cases; and these, once domesticated in an orchid-house, are with difficulty extirpated. Every portion of

the plants should be carefully sponged to remove scale, with which orchids are much infected. All withered, decayed, and dead roots and pseudo-bulbs should be removed with a sharp knife. Where large plants are received, they are often encumbered with masses of long tangled roots: these should be carefully disentangled by hand, and the dead portions removed; care being taken not to bruise the living parts or the young spongioles which often shoot out from old roots.

Care must also be taken not to injure the eyes which may have developed at the base of the last year's bulbs, or to bruise any tender foliage.

The living roots of orchids are green within. As soon as they die, they become soft, and the thread (so to speak) running through the middle grows hard and woody: thus it is easy to tell what portions should be removed. Any roots entirely dead should be cut off close to the base of the pseudo-bulbs.

Where the plants are very large, they may often be divided to advantage; but it is not best to attempt this before they show signs of growth. Should the plants, however, be so large as to be unmanageable, and the future eyes be developed, it may be well to divide into as many plants as there are eyes. This, however, will be seldom done by the amateur, — for it is his object to have large and fine specimens, — but must be resorted to by florists who wish a stock for sale.

The plants obtained from florists are generally so small, that a growth of a dozen years is necessary to make a specimen; and the flower of a small plant gives but little idea of the magnificent effect produced by a specimen.

It not unfrequently happens that the upper part of a pseudo-bulb is decayed, while the lower is sound, and has healthy eyes at the base. In this case, the diseased portions may be cut away without injury to the plant; and frequently the shoots developed from a plant thus treated are stronger and more healthy than those from sound bulbs.

It is not necessary that the pseudo-bulbs should have leaves; these are frequently lost in importation: and, if the bulb is ripe, the health of the plant, or its power to produce eyes, is not visibly affected. All bulbs, however, which are alive and sound, should be preserved, as they are most necessary to the plant

In separating large masses of bulbs, three or four pseudo-bulbs at least should be given to each new plant, the newest of which will always have the eye for the new growth. These old bulbs are necessary for the nourishment of the new growth; and from them we may often cause eyes to break forth, and thus form a fine specimen.

Even if a pseudo-bulb appears dead, and if the roots are all gone, if it is at all green and without decay, it should not be cast aside; for it may produce eyes under careful treatment.

With such plants as *Epidendrum*, *Lelia*, and *Cattleya*, the top of the bulb is often dead, but the bottom fresh and in good health. If, after removing the dead or decayed portions, we can save even a small part of the bulb, we need not despair of the formation of a new plant.

Some orchids, as *Huntleya* for example, have no pseudo-bulbs. If the leaves of such have fallen off during the voyage, the crown, with living roots attached, must be carefully preserved. Even if it appears dead, it will generally produce a new shoot. Sometimes we receive large masses of plants with large pseudo-bulbs, such as *Oncidium*, *Zygopetalum*, *Peristeria*, and *Odontoglossum*, where the whole lower part of the bulbs is decayed: in such cases, all the rotten or diseased portions should be cut away, and the plants placed in the orchid-house, either on a shelf, or potted. Smaller bulbs will not unfrequently form on the top of the old bulbs, throw out roots, and derive nourishment from the rest of the bulb, and in time make good plants. When the plants are thus all clean, they should be laid in dry moss or sand in a rather cool and dry part of the house, and shaded, as we have said. The moss or sand should be gradually moistened: and, when the plants begin to grow and make roots, they should be potted, or put on blocks or in baskets; but care must be taken not to have the pot too large, as overpotting is dangerous.

As soon as they begin to grow, those which came from the hotter parts of India should be put at the warmest end of the house; but they should not have too much moisture at first. Those which came from more temperate regions should be kept at the coolest part of the house; care being taken not to allow any drip to fall upon them, which frequently rots the young shoots as soon as they appear.

Such plants as *Vandas*, *Saccolabiums*, *Ærides*, *Angræcum*, *Phalænopsis*,

should be fastened on blocks as soon as they are received, and so placed that the plants hang downward, in order that no water may lodge about them till they begin to grow and form new roots.

In fine, the treatment is to keep the plants without excitement until they show signs of growth; then to stimulate gently until the growth is developing; then pot, and treat as old established plants.

BOSTON, August, 1868. *Clarence E. Herbert.*

TILE-DRAINING.

I AM tile-draining some fifteen acres of land. A considerable portion of the work is already done. My drains are from three and a half to five and a half feet deep, and nearly all are over four feet deep. From two or three of the deepest drains, the water will probably run the entire year. From the other drains, it is not anticipated that the water will flow more than six months out of twelve.

The ground that I have thus drained I am putting out with pears, cherries, grapes, raspberries, and strawberries.

Now, practically, I find it very difficult to avoid frequently locating individual trees and vines, and in some cases whole rows, very near to or immediately over a tile-drain.

The point I wish to make is this; to wit, How near can I go to my tiles with the different fruits without encountering the risk of obstructing my drains with the roots of trees, vines, and shrubs? I think I can safely put out raspberries, currants, strawberries, and some other small fruits, without regard to the location of my drains. I have in some instances ventured to plant pears on the quince-root immediately over drains. From all that I can learn of the habits of the roots of the quince, I do not think it probable that they will interfere with the tiles. In case the pear-wood should put out roots above the quince, these roots will make a horizontal growth, and will not be likely to reach the tiles.

But what shall be our conclusion in regard to the pear-tree on the pear-root? How far will the tap-root of the pear penetrate into Mother Earth? or, rather, how far will the several nearly vertical roots that usually take

the place of the original tap-root when it is pruned off extend below the surface? Will they obstruct drains four to five feet deep, and in which water flows only a few months in the year?

And what about the grape, and the cherry on the Morello stock? Shall we have a response from some authoritative source? These are all practical questions of much importance to the writer just now, as they will be to many others in the progress of coming events. Americans are only just beginning to appreciate the importance of under-draining, especially in its connections with fruit-culture. A few years will witness great changes in this regard, more particularly on the rich, damp prairies of the West.

When a man shall have once thoroughly drained his grounds after the most approved system of tile-draining, more especially if those grounds are more or less broken or undulating in surface, should he wish to make a fruit-garden or vineyard of those grounds, he will always find it difficult in practice to avoid frequently planting trees and vines near to and immedediately over his drains.

Hence the pertinence of a few questions in regard to the habits of the roots of the leading fruits that are now receiving the attention of horticulturists.

It is well known that there are trees that it will not do to plant within some rods of a tile-drain through which water flows any considerable portion of the growing season. The elms, the willows, and the poplars are of this class. Who can tell us how near to a tile-drain we may plant the various fruit-bearing trees and vines? On this latter subject the books are dumb.

In putting out trees and vines, it is quite enough to be under the necessity of consulting their form and habits of growth, the kinds of fruit they bear, and the exposure, and the quality of soil they require, without going four to five feet under ground to find other conditions to still further complicate the work.

In grounds, moreover, laid out and cultivated with some regard to order and beauty in design, with a curve here and an angle there, it will not always be possible to locate the trees or vines exactly half-way between two straight tile-drains just thirty feet apart.

N. B. — While this subject is up for discussion, let the Osage orange come in for a share of our attention. During the approaching summer, I wish to lay a tile-drain four feet deep, through which there will be a perennial flow of water, within eight feet of an osage-hedge. That drain must also have an outlet directly under and across a hedge-row. Under these circumstances, will the roots of the hedge ultimately obstruct the tile-drain?

ONANGO, ILL. *W. P. P.*

[Our correspondent has evidently a pretty correct understanding of the principles that relate to thorough drainage and to the habits of plants; and he will readily appreciate the importance of discriminating between general rules and their exceptions. Mangel-wurzels have been known to grow from the seed into four-feet tile-drains, so as to obstruct them in a single season; but this is an instance so rare, that thousands of acres of mangels are annually grown in Great Britain upon tile-drained land, with no trouble from this cause.

Even water-loving roots, like those of the willow, enter into tiles so as to obstruct them, only under peculiar circumstances. A moment's reflection will determine that this must be true.

The usual operation of drainage is this: Water falling upon the surface descends till it meets some obstruction like clay or hard-pan, when it is forced laterally toward the lowest outlet, which in drained land is the tile-drain; and through that it escapes. The water nearest the drain escapes most readily, having the least distance to traverse; so that the dryest part of the field is over the drains, and the wettest part is midway between them. Again: in nine-tenths of drains, as ordinarily used, water runs only in the wet season, or for a few days following a rain-fall. It will be seen, therefore, that roots which seek water will find it, under such conditions, anywhere else better than in the drains.

Occasionally, however, in draining, we tap a spring copious enough to send a small stream through the tiles during most or all of the dry season. Now, the drain and the soil about it is wetter than other parts of the field: and, in a drought, almost all roots seek for moisture; and the willows and the elms, which even descend many feet into wells, make long strides, and creep into the crevices of the tiles, and fill and obstruct them.

Our advice to our correspondent, based upon these principles, is this, — to plant his trees, shrubs, and vines without regard to the drains. He will probably never find his drains obstructed, except where there is a perennial flow of water; and then he will probably have no serious difficulty for years. If at some future time the drains should cease to operate, he can relay them, or lay new ones between his rows of trees, as readily as he repairs his fences.

The only regard we should pay to the chances of obstruction from roots would be to lay three-inch instead of two-inch tiles where we expected a flow of water through the dry season. The larger tile having a capacity more than double the smaller, or, to be exact, in the proportion of nine to four, is far less liable to become unserviceable from obstruction of any kind.

[For a full discussion of the principles involved in this subject, we refer our readers to French's "Farm Drainage." — ED.]

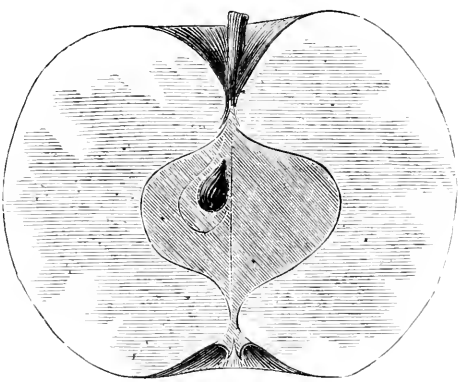
SEEDLING STRAWBERRIES.

WE learn, from "The Revue Horticole," that Dr. Nicaise of Chalons, to whom we owe La Chalonnaise and La Sultane, is still enthusiastically at work at his favorite occupation, — viz., producing new varieties of the strawberry, — and that he has succeeded admirably. Among the new varieties, only one or two of which have been disseminated, the Abdel-Kader, Africaine, Perfection, and Rubis are mentioned in terms of the highest praise. The Alexandre II. is said to produce berries larger than the Dr. Nicaise; and yet the latter, we are told, has given its originator this season berries weighing *two and a half ounces.*

We have not been lucky with the Dr. Nicaise this year. Our plants set in a cold frame last September have had assiduous attention, but have died one after another, until we have only six or seven out of our original twenty-five; and these are poor and weak. We hope, however, that our readers who have it will stick to it, and exhibit next year an abundance of berries seven to the pound.

NEW APPLE.

TÜBNER'S GOLDEN APPLE. — Exhibited at the meeting of the American Pomological Society, held in St. Louis, by the distinguished Western pomologist, Mr. George Husmann, who found this seedling near Hermann, Mo. The tree is annually productive of abundant crops of fair, and even specimens of handsome, apples. Fruit below medium, round, truncated or flat-



tened, very regular and even; surface very smooth; clear golden yellow; dots small, white; basin abrupt, regular; eye small, closed; calyx reflexed; cavity medium, regular; stem medium; core small, closed, meeting the eye; seeds few, large, wide; flesh yellow, breaking, juicy; flavor acid. Use, market and family; quality good; season, September.

A NEW SYSTEM OF ROSE-CULTURE.

SOME of the French and English horticultural journals speak of a new method of growing roses, quite different from any before practised. The essential points are three, — first, to prune out all the old wood; second, to shorten the new wood very little; and, third, to peg it down flat to the earth. The rose is allowed to bloom, like a raspberry, only on the wood of the last year's growth; and this wood is but very slightly pruned. All this is very unorthodox, and contrary to every received maxim. The effect, however, is said to be very fine. The long, young shoots, pegged down to the ground, produce an abundance of flowers from every eye; while fresh shoots grow up with the greatest vigor from the centre of the plant. These, in turn, are pegged down the next year; those which had bloomed being first cut away. It seems incredible that roses, under this treatment, should produce as large flowers as under the system of short and severe pruning; but they can certainly be produced in a prodigious abundance. The ground is said to be completely hidden with masses of foliage and blossoms. The effect of laying the shoots in a horizontal position is to cause the eyes, or leaf-buds, to open from end to end of the stem; while if it had been left in its natural, upright position, the tendency of the sap to rise would have caused the eyes at the top to open, while those below remained dormant. The new method will probably be found to have one great advantage: the rose will live longer under it than when subjected to very close pruning. This latter practice is sure to result every season in a quantity of dead wood, which has to be cut away. Some varieties, when cut near to the ground year after year, rapidly decline, and at length die.

The plan of long pruning and pegging down was first tried two or three years ago in England and France, and has since been practised with great success by a French cultivator, M. Jean Sisley of Lyons, who describes his experience in the "Revue Horticole." It is well worth a trial here. We mean to try it, and we commend it to all amateurs who have time and patience for experimenting. *F. Parkman.*

THE PRESIDENT WILDER STRAWBERRY.

THE plant is hardy, robust, vigorous, and very productive. The foliage is handsome and well developed; leaf dark-green, roundish, obovate, deeply serrated, of great substance, with stiff, short foot-stalks, and stands the extremes of heat and cold without injury. The flower-stalk is stiff and erect, the flowers perfect. The fruit is large, some specimens attaining to more than five inches in circumference; and many berries this year weighed more than an ounce avoirdupois each. Their color is brilliant crimson scarlet; form obtusely conical; the flesh rosy-white, very juicy, but sufficiently firm for market; flavor rich and sprightly, inclining to sweet, with a distinct aroma of the Alpine or wood strawberry; seeds small; season late.

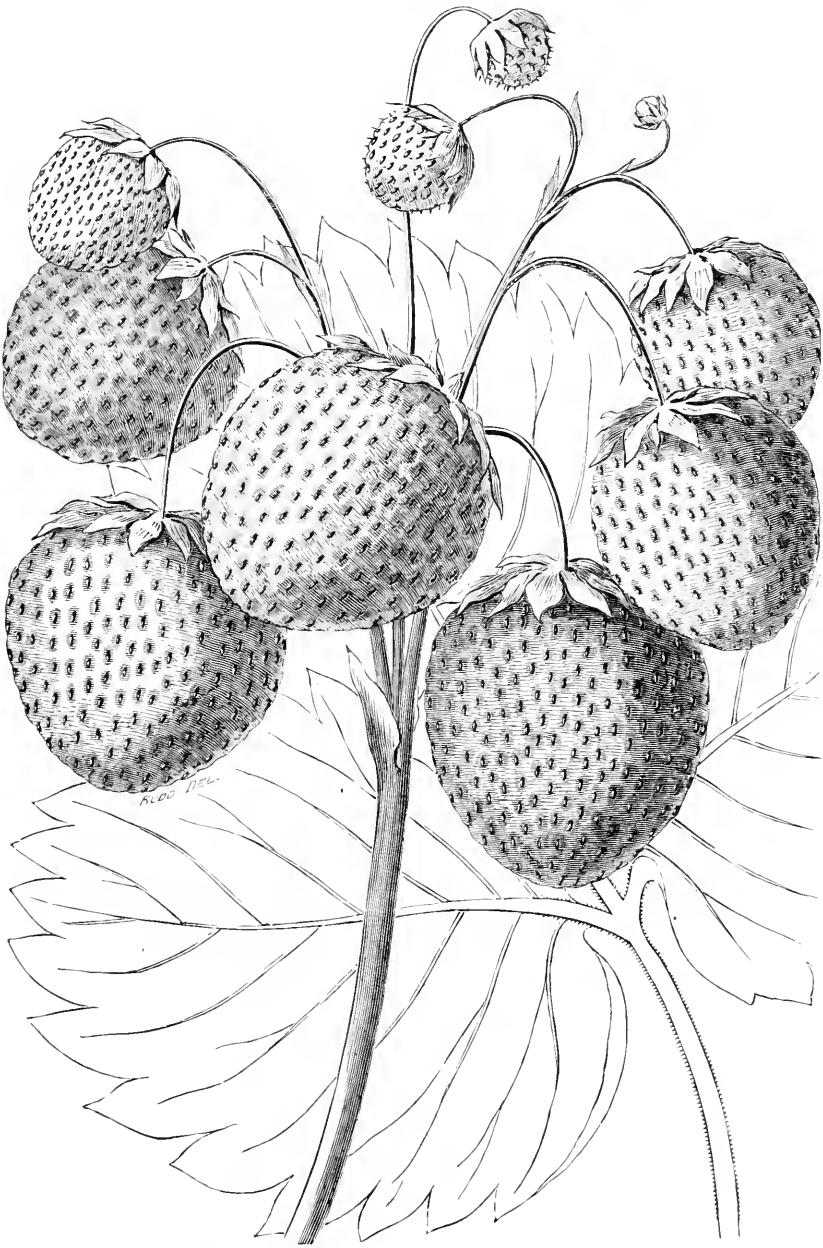
This variety was produced in 1861 by Mr. Marshall P. Wilder, from artificial impregnation of Hovey's Seedling with La Constante, the best two varieties, perhaps, that are now under cultivation; La Constante being the best of the foreign kinds ever brought to this country, and Hovey's Seedling being too well known to need any further mention.

For perfection of form, flavor, and brilliancy of color, combined, this strawberry exceeds any thing that has been produced for a long series of years.

Mr. Wilder has been at work raising seedlings for thirty years; and although he has obtained several good ones, he never yet has got one with which he is so completely satisfied as he is with this. The description we have given above is, we believe, in substance, the description settled upon by the Fruit Committee of the Massachusetts Horticultural Society; to whom the question of a name was submitted, and who have called the strawberry "President Wilder." We have no doubt that it will keep Mr. Wilder's memory green for years and years to come; or that, as soon as it becomes known, it will take the highest possible rank among strawberries, and perhaps supplant every thing else.

We might go on praising the berry until we had made our readers perfectly incredulous as to its merits; but the simplest and strongest proof we can give of the value we set upon it is to be found in the fact that we have purchased, at an enormous price, Mr. Wilder's whole stock, — every plant he has or will have, — and intend to distribute plants among the subscribers to "The American Journal of Horticulture."

We do not intend to put this strawberry into the market for sale, but to



use it for the benefit of the subscribers to the Journal.

THE COMPOSITÆ.

THERE are about a hundred thousand different species of plants growing on this globe of ours. This is twice as many as the number of words that Noah Webster found in the English language. To each plant, botany has given, or is giving, its own scientific name; which is Latin in form, but equally understood at Moscow and Quito, at Boston and Berlin. These names are a part of the universal language. They are all double, as *Morus multicaulis*, *Camellia Japonica*. There are two reasons for this: it would be impossible to manufacture a hundred thousand names, and use them; and, again, many plants are so like each other, that it is very difficult to know them apart. A man who should learn all the willows of the world so as to know each species at sight, without reference to any memorandum, would have no time to learn the Ten Commandments.

So all the species are united into genera; and each genus has its name, as *Morus*, *Camellia*. Different species in a genus are distinguished by an additional word, generally an adjective: thus different mulberries are known as *white*, *red*, *black*, and *many-stemmed*,-*Morus alba*, *M. rubra*, *M. nigra*, and *M. multicaulis*. Even where a plant is so unlike all others known as to be in a genus by itself, it has its double name. Indian-corn (maize) is an example: its name is *Zea Mays*. When the second name is also a noun, as *Mays*, it begins with a capital letter. It is often an adjective derived from the name of a place or person, as *Japonica* from Japan, or *Grayana* from Prof. Gray: in this case, those who write in English generally use capitals; but others do not. Plants belonging to the same genus are called *congeners*. When a botanist is studying a whole genus of plants, and finds that it contains some which are too different from the rest, he makes a new genus of them, and gives it a name. When a genus is very large, he does this if he can find a good mark to go by. The buckwheats, of which there are half a dozen, have in this way been removed by Moench from polygonum, a genus which included them with prince's-feather, smart weed, heart's-ease, and more than two hundred other plants. This necessary work occasions confusion and unavoidable inconvenience.

The first person that publishes a description of a plant has a right to

give it a name: if he puts it into the right genus, and does not blunder, no one must meddle with his name. The name of the describer of a genus or species is written with its name in many cases: thus Tournefort named the genus *Morus*, and Linnæus the species *M. alba*. So we say *Morus* (Tournef.) and *M. alba.* (Lin.). Here is quite a temptation to little men to immortalize themselves by changing a name.

Again: the genera that are most alike are united together into an *order*. One of these, *Filices*, includes all the ferns; another, *Gramineæ*, the grasses; another is named *Compositæ*, the composite plants. This we have selected for our present study. We have three reasons for this: they are easily recognized, are very numerous, and the parts of the flower are so modified as to afford us just the exercise we need. The dandelion in the spring, the daisy in summer, and the golden-rods and asters in autumn, furnish us with ready examples. And who cannot find a thistle, a burdock, or a beggar-tick, wherever there are blossoms anywhere?

As to numbers, there is but one order which is half as large as the compositæ. They constitute about a tenth of the flowering-plants of Massachusetts, of the United States from Behring Straits to Key West, and of the world. Most of them are herbs: one found on our sea-coast is a small shrub called marsh-elder, or high-water shrub, — *Iva frutescens*. One is the only thing resembling a tree that grows in Bogotà; another is a slender tree in the recesses of the Andes. Strangely enough, most of the trees of St. Helena are of this order.

None of those native to our part of the world are more useful for food than lettuce and dandelions. But the tuberous roots of the Jerusalem artichoke are well known to boys, and not unacceptable to pigs. Its name is a corruption of the Italian name for sunflower, *girasole*, of which it is a species, — *Helianthus tuberosus*. The true artichoke is a composite plant, *Cynara Scolymus*, of which we eat the boiled flower-bud. The tuber is called artichoke, because it resembles the bud in taste. But by far the most important food-plant known to us in this order is the salsify, or vegetable oyster, — *Tragopogon porrifolius*, — of which few know the full value. Another root of similar shape is the best adulteration of coffee yet known (cichory), — *Chichorium Intybus*. In fact, where cream is abundant, the moderate addition of cichory is rather an improvement on the unmixed berry.

It grows abundantly in the grass by the roadside near Boston, but probably with small roots. It is used as a forage-plant in some parts of Europe. It grows two feet high, and has blue flowers. The seeds of the sunflower furnish good food for fowls, and they are relished by some animals. These seeds, and a few others, furnish a mild, eatable oil. A very few others furnish food in other lands. Succory, endives, and cardoons are the blanched leaves of three congeners of cichory. Scorzonera resembles salsify. Dahlia-tubers have been eaten, and also the roots of a very few others.

The compositæ are more important as medicines. Arnica, wormwood, chamomile, elecampane, boneset or thoroughwort, blessed-thistle, safflower or bastard saffron, colt'sfoot, dandelion, and lettuce, all are known to us as medicines; but few if any imported drugs are furnished by this order. The gall-of-earth, *Nabalus Fraseri*, is a dangerous emetic; while two of its congeners in North America, and many composites in South America, enjoy a questionable reputation in snake-bites.

But to return to the compositæ. A few of them yield resins: one of these, *Silphium laciniatum*, is called the compass-plant, because its leaves mostly face to the north or south. The flowers of several yield dyes, as safflower, dahlia, and cichory. But the list of useful compositæ is very small, considering the vast number of plants in the order; and the whole of it would scarcely be missed from the catalogue of human comforts were it to be struck out of creation.

We are now ready to examine the structure of the flowers. Let us take a large blossom of the sunflower. It is not a single flower, but a head (*capitulum* is the definite term), with hundreds of flowers seated on its broad *receptacle*. What you take for a calyx is an *involucre;* and its component parts are not sepals, but bracts, which, in this case, are called *scales*. By picking off the flowers one by one, we find them nestled in *chaff*, which adheres to the whole surface of the receptacle. The chaff consists really of bracts also,—a name that embraces every thing of the character of leaf outside the calyx that is related to the flower. Many of the receptacles are naked; that of the dandelion, for instance.

Now let us detach a single flower from towards the centre, including, of course, the "seed," as you call it, on which it stands. As the real seed is

the innermost thing in the flower, you know that the outer coats of this body are theoretically composed of the adherent calyx and the organs within it. So, strictly, the sunflower "seed" is a one-seeded fruit, as a cherry or walnut is, in which last the outer husk answers to the pulp of the cherry. The fruit of the compositæ never opens. It is called an *achenium*. Within you find the real seed, consisting of a thin skin, with the plantlet, *embryo*, completely filling it. Many seeds have within, besides the embryo, a substance called *albumen*. The "chit" of a grain of maize is the embryo: all else within the grain is albumen. The external surface of the real seed in grasses is inseparable from the inner surface of the fruit. This is the difference between the *caryopsis* of wheat and the achenium of the compositæ. The embryo of the sunflower is straight, with the rootlet (*radicle*) pointing upwards.

On the top of the achenium, and outside of the rest of the flower, are two scales, easily rubbed off. These represent the free portion of the calyx, and are called the *pappus*. There is an immense variety in the pappus of the compositæ. Often it remains after the corol falls off, and grows into a sail to carry off the achenium. In the beggar-tick it consists of two stiff, barbed bristles, by which the achenium is carried off on our clothes.

Within or above the calyx is, of course, the corol. This is less disguised than the other parts have been. Its five petals are soldered into a tube, with five points to show their number. This little organ alone is sufficient to warrant the conjecture, that the compositæ are an order of the monopetalous exogens: that conjecture is correct.

The andrœcium within consists of five stamens, with free filaments; but their anthers are connate into a tube. Connate anthers are also found in lobeliate plants, and in a very few others.

Of the gynœcium, the more important part is, of course, beneath the apparent insertion of the corol and filaments. If it consist of two or three carpels, the ovaries (being adnate to the outer organs) are, of course, connate into one body. This has a single cavity, with a single erect seed. The styles (if theoretically more than one) are connate nearly to their top. Passing through the tube of anthers, the style divides into two branches. The shape and character of these is of great artificial importance to help find in what part of this immense order a plant belongs.

We have finished our examination of a flower taken from towards the centre of the capitulum. But around the edge are very different flowers. They are called *ray-florets:* those within are *disk-florets.* In some genera, the ray-florets differ from those of the disk in one point only, — the corol is longer, and opened out into a strap, looking like a single petal. Other genera have the ray-florets pistillate, as the asters and elecampane. But in the sunflower the rays are a perfect sham: their only office, like that of some members of modern society, is to look well. A showy corol stands as an abortion of an achenium; and that is all: such florets are called *neutral.* Others again, as the compass-plant and pot-marigold, have the florets diclinous, the rays pistillate, and the disk staminate. Other genera, again, have diclinous capitula; as the ambrosia, ragweed, hogweed, bitterweed, or Roman wormwood. Here the pistillate capitulum has but one floret, and this develops into a sort of nut. The miserable cockle-burr, or clot-burr (Zanthium), is of this kind too. Its fertile capitulum is two-flowered, and ripens into a two-seeded nut, with hooked prickles, that take tenacious hold of stockings, or any fibrous substance that touches them.

Many compositæ have no ray-florets, and are called *discoid;* while those which have are called *radiate.* Among the radiates, the thistles, burdock, and blue-bottle or bachelor's-button, are well known. The last has the outer florets larger and neutral; but they are tubular. The composites that have tubular florets form the first and by far the largest sub-order, the *Tubifloræ.* The third, the *Liguliflorœ*, has all the corols strap-shaped; as the dandelion, cichory, and salsify. The second sub-order is unknown in the Northern States; but a single species is found at the South, — *Chaptolia tomentosa.* The sub-order is called *Labiatifloræ*, and has the corols of the perfect florets cleft into two lips. None of them are found in Europe or Northern Asia. Most are South-American, and some of them very beautiful; the mutisias, for instance.

In 1846, Lindley estimated the genera of compositæ at a thousand and five, and guessed the species at nine thousand. The eight hundred and thirty-seven genera described by Endlicher a few years earlier were divided as follows: Tubifloræ, seven hundred and three; Labiatifloræ, sixty-six; Liguliflorœ, sixty-eight. But the two-lipped genera are much poorer in species than the others.

Thus we have examined in detail one order of plants out of about two hundred and fifty, which embrace all the species of the world. And we see that to understand the structure of the order is almost to understand that of every plant in it. But it is not necessary for even a good botanist to understand every order as well as you now do this. The plants of the Northern United States are contained in but a hundred and forty-three orders, and so unequally distributed among them, that half our flowering-plants are found in ten of them. Well, it is some consolation to have finished off, after a sort, one-tenth of all the vegetable creation. But we must remember that there is no other tenth that could be learned with twice the labor, were it not that each acquisition makes the next more easy.

South Malden, Mass. *I. F. Holton.*

RHUBARB, OR PIE-PLANT.

This should be transplanted every two or three years, or the stalks produced will be quite small. The work may be done at almost any season of the year; for it will bear almost any kind of treatment. It is better to do the work in spring, before the plants have started much; but if not, then any time until the first or middle of June. Some growers are in the habit of pulling the rhubarb for market; and, after the crop is secured, then transplant for the next year. One of the best growers of this plant that we ever knew would never allow this course to be pursued. This plant must have a very large amount of manure to give the very best results.

HOW SHALL I SAVE MY PLUMS?

This question is often asked by those who have been disappointed in their plum-crop year after year. The best way we know of is to shake the tree every morning for two or three weeks after the fruit is set, and so catch and destroy the wicked fellows. The next best plan is to dust the tree and fruit thoroughly with air-slacked lime or ashes, and renew as often as it is washed off. Either of these plans, if properly carried out, will insure a crop of fruit.

FOREST-CULTURE. — No. I.

Scotch Larch (*Larix Europæa*).

Of all the deciduous trees, either in Europe or America, the larch is the most valuable; for, while it combines extraordinary strength and durability, it possesses extraordinary beauty, and a tendency to rapid growth. It is perfectly hardy too; for it endures the coldest winters in the United States and Canada, and will flourish as well on dry and sterile as on rich and fertile soils.

To sustain these several assertions respecting this extraordinary tree, I will speak particularly of its *rapid growth*, *strength*, and *durability*, and something of its *beauty*, and of its adaptation to poor as well as good soils.

1. *It is a rapid Grower.* — In the year 1857, I imported several thousand plants of this tree from Scotland, from six to twelve inches in length, and planted them in my grounds. In 1859, I transplanted a large portion into timber-belts, four feet apart in the row. Many of these trees measured, in 1867 (ten years after they were imported), from eight to nine inches in diameter near the collar, and had attained a height of more than twenty feet, and were straight as an arrow, with an exact taper from the base to the top. Many of these trees will now make three good fence-posts each. The tree continues thus rapidly to grow, seventy or eighty or even a hundred years, when it attains a height of a hundred feet or more, and three feet in diameter. (See writings of Lauder, Loudon, and others.)

2. *Its Strength.* — It is reported to possess unequalled elastic strength. Sir T. D. Lauder says, "It is the most useful timber-tree of Europe, where strength and durability are wanted." This is confirmed by every intelligent European who has had experience with it. It is largely used for the shafts and axles of carriages and carts, and for masts and spars of vessels.

3. *Its Durability* is asserted to be equal to, if not to exceed, that of any other known timber. One of the oldest and most experienced nurserymen in Scotland (Peter Lawson, Esq.), in answer to my inquiry respecting its durability as a post set in the ground, replied, that "it had no equal except in the red cedar, and the preference was in favor of the larch."

To corroborate this statement, I quote further from the written works of

Mr. Lauder, who says, "The larch is unquestionably the most enduring timber we have. It is remarkable that whilst the red-wood, or heart-wood, is not formed at all in other resinous trees till they have lived a good many years, the larch, on the contrary, begins to make it soon after it is planted; and while you may fell a Scotch fir of thirty years old, and find no red-wood in it, you can hardly cut down a young larch large enough to be a walking-stick, without finding just such a proportion of red-wood, compared to its diameter as a tree, as you will find in the largest larch-tree in the forest. To prove the value of the larch as a timber-tree, several experiments were made in the River Thames. Posts of equal thickness and strength, some of larch and some of oak, were driven down, facing the river-wall, where they were alternately covered with water by the effect of the tide, and then left dry by its fall. This species of alternation is the most trying of all circumstances for the endurance of timber; and accordingly the oaken posts decayed and were twice renewed in the course of a very few years, while those that were made of the larch remained altogether unchanged."

Mr. Loudon, in his "Arboretum," says, "No wood remains uninjured by water longer than the larch; and, for this reason, it is in general use in France and Switzerland for water-pipes. Larch is much used in Switzerland for shingles and for vine-props. For the latter purpose, it is found the most durable of all kinds of wood. The vine-props of it are never taken up: they remain fixed for an indefinite number of years, see crop after crop of vines spring up, bear their fruit, and perish at their feet, without showing any symptoms of decay. In most instances, the proprietors of the vineyards are perfectly ignorant of the epoch when these props were first placed there: they received them in their present state from their fathers, and in the same state will transmit them to their sons. Props made of silver-fir, and used in the same soil, for the same purpose, will not last more than ten years."

4. *Its Beauty.* — While the *common* American larch has a wild, straggling habit in its growth, the Tyrolese forms one of the most beautiful cone-shaped trees in the world when standing alone. Its limbs project immediately from the tree, a very little inclining upward; and continue to incline more upward as they extend, till the whole tree is formed into an exact

cone, in regular angular lines from bottom to top. I find by measurement that one standing in my grounds, unobstructed by other trees, is ten inches diameter of trunk at base; twelve feet diameter across the lower circle of limbs, which incline in a straight line to the top, which is twenty-five feet in height. So uniform are they, that in a row of a hundred and fifty trees set in a right line, which are twenty feet in height, one would not observe any unevenness as he looked along the line. No tree puts forth its foliage so early as this. Even before the frost wholly leaves the ground, its buds start.

The last peculiar feature that I will notice in this article, yet by no means the least important, is its adaptability to all dry soils. It is asserted that the lands on which the Duke of Athol planted his extensive forests were nearly barren of vegetation; and yet his forest of larch, when it had been planted thirty years, was worth five hundred pounds sterling per acre. Also, that, according to the "measurement of the duke himself, trees which he planted in 1743 and 1744, measured, at the age of fifty-two years, from nine feet two inches to ten feet in diameter four feet from the ground, and a hundred feet in height." This growth must, I think, fully equal that of mine planted on our rich prairie soil. It is asserted that the tree is a self-fertilizer; that the falling of the foliage annually forms from a quarter to half an inch of soil: therefore the soil grows richer under the growing crop. The rocky and comparatively barren hills and worn-out lands of New England are peculiarly adapted to this timber. According to the most careful estimates, the income from a single acre of larch, in thirty years, is not less than five thousand dollars. This amount is taken from the acre in four harvests, or thinnings, one in six years from planting, another in twelve years, the third in twenty, and the fourth in thirty years, leaving a forest of over three hundred trees per acre, at twelve feet apart, to grow on to fifty or seventy-five years of age, when the trees are a hundred feet in height and three feet and more in diameter, and worth at least thirty dollars a tree, or nine thousand dollars. *D. C. Scofield.*

To the Editors of "The American Journal of Horticulture and Florist's Companion."

Sir, — The reasons that I gave in my last for not undertaking to give you any general description of Germany operate with still stronger force to deter me from making the attempt with respect to France, — a country of still greater activity, a more varied industry, and a greater diversity of climate and production. France is a country of great commercial activity and enterprise in its constantly-increasing foreign as well as in its domestic trade, where a very varied manufacturing and mechanical industry has attained a vast development, and a perfection that could only have been reached by great practical experience and skill, directed by science and ingenuity; but still one, where, as in most others, agriculture is the support and occupation of the larger part of the community. Agriculture in France has, as it seems to me, this advantage, — its practice is not confined to the same products for the whole empire, but is divided among several, each suited to the soil or climate of different portions; thus giving greater opportunities for the exercise of individual skill and intelligence, and greater probabilities of profitable results, than if its operations were everywhere limited to one established routine of crops and cultivation. Thus, in some parts of the country, the attention of the husbandman will be given to the raising of the cereals, in others to the cultivation of the vine, and still in others to the mulberry and olive for producing silk and oil; all branches of one great art, — the cultivation of the soil to the best of its capabilities. Agriculture in France has attained a very considerable degree of perfection, and the researches of science have been directed to its still further improvement; while, at the same time, the attention of the government has been given to its further development. The emperor, too, has given to it the benefit of his influence and

example by establishing model farms, and has begun an experiment on his own account, that he is still prosecuting, it is to be hoped successfully, with a view to bringing into cultivation, and rendering of some value, a large tract in the south of France that has hitherto been little more than a barren desert.

The scenery of much of France is sometimes complained of as being uninteresting and monotonous. This may be true to some extent; but it is hardly, I think, justly liable to the sweeping denunciation of dulness that I have heard applied to it: and those who are satisfied with fertility and cultivation, with pleasant valleys, sunny hills, and cheerful plains, dotted with groves and watered by numerous rivers and streams, will not have much occasion to complain of the landscape. It is true, that, speaking of it in very general terms, France may be said to be a level country; not flat, but consisting of swells of land, intermixed with rolling plains. Yet this description would be applicable to but a portion of it; for in parts of its territory it is occupied by ranges of hills, and chains of mountains. On the south, there are the Pyrenees, that separate it from Spain, and the hills that bound the Mediterranean; on its eastern border, there are the Alps, the chain of the Jura, and the Vosges; more in the interior, that of the Cevennes, and the mountains that border the course of the Rhone, — enough, without naming others, to show that France is not destitute of mountainous scenery, nor wholly wanting in that which is productive of picturesque effect. Except to those who see no beauty but in mountain-scenery, that of the north-west of France can hardly fail to be interesting and attractive. Here are highly-cultivated, swelling hills, and beautiful valleys, with much varied outline, winding rivers, passing by sunny slopes, and fields bounded by hedgerows; almost everywhere fertility and high cultivation, numerous orchards, cottages, and gardens, that, combined, tend to form a landscape not unlike that so often met with in England. So, too, those who are satisfied with views from which grandeur and sublimity are absent can hardly fail to be pleased with such as often present themselves to the traveller as he passes down the course of the Loire through a country covered with vineyards, orchards, and corn-fields, — a country, that, for beauty, fertility, and cultivation, has sometimes been called the Garden of France, and was once a favorite residence of its kings, as is proved by the ruins of Plessis les Tours and the yet existing Château of Chambord.

In consequence of the law of inheritance, that requires property to be equally divided among the children of a family, much of the land in France is very much subdivided; and although the law commends itself, as founded on principles of justice, its effect on the agriculture of the country is somewhat questionable: for these small properties cannot afford to avail themselves of the advantages to be derived from the employment of agricultural machinery; neither have their proprietors the capital to invest in draining the land or the purchase of special manures, no matter how desirable it might be, or whatever profits such an investment would promise. Generally, the farming population of France reside in villages, and not in cottages upon their several properties; this being, as I suppose, more in accordance with their habits and tastes, although necessarily attended with some inconvenience. In much of the country, there are no enclosures to mark the boundaries of the different properties; and as these are often small,

and those adjoining each other often under different kinds of crops, with a distinct vegetation, its appearance gives the idea of the squares of a chess-board. This absence of enclosures must necessarily prevent the use of the land for pasturage, and requires that the cattle should be fed by soiling.

The climate of France, in some parts of the empire, differs very much from that of others. Although the winter is comparatively short in the north, frost and ice, with much wet weather, are usual, yet, in the south, these are of rare occurrence. The past autumn, even in Paris, dahlias and other plants were in full flower as late as Nov. 12; and would probably have continued so until the 1st of December, had they not been cut down to receive their winter's protection: while in the south, especially along the coast of the Mediterranean, roses bloom through the winter, camellias and other half-hardy plants flourish in the open air, and orange-trees laden with fruit may be seen wholly without protection.

The kinds of crops raised in the northern and central parts of France are those that are usually cultivated in all temperate climates, — wheat and other cereals, potatoes and other roots, together with the common vegetables; in addition to which, large quantities of beets are grown for the making of sugar, of which a large amount is manufactured. I have never noticed any thing peculiar in the mode practised in growing these crops, and no remarks upon the subject seem called for. The growing of beets for sugar is an important cultivation in France. I have seen it stated, that, in the department of the north, there were more than a hundred and fifty establishments for the manufacture of sugars from the juice of this plant. In the southern part of France, a large quantity of silk is produced; and, still farther south, the olive is grown for the making of oil. But, after that of the cereals, the most important cultivation is that of the vine: it extends in a greater or less degree, according to circumstances, through eighty-one out of the eighty-three departments into which the empire is divided, and produces a very important part of the income derived from agriculture. Large as this culture is, it is supposed that it could, without much difficulty, be largely increased. The vine appears to thrive readily if it have a climate and exposure suited to it: it seems to grow in almost all sorts of soils, — calcareous, silicious, and argillaceous; sometimes, even, it may be seen loaded with fruit in the midst of pebbles and flint-stones. In the south-west, they sometimes make a hole with an iron bar, put in a vine-shoot with a handful of vegetable earth, and in a short time have a fruitful grape-vine. Manure has a beneficial effect on the vine; and, in the spring, laborers are constantly to be seen carrying it up the steep hillsides in baskets where the vines can be reached in no other way. In France, the vines are usually planted in rows about four feet apart, trained to small stakes about four feet high. Sometimes three or four vines will be planted near together; and, being drawn and bound together at top, they are thus made to support each other. Occasionally I have seen the vines grown much higher, trained to stakes six or eight feet high, or else with their tops bent over and trained to lower stakes; thus forming, as it were, arbors or festoons: in these cases the trunks or stems of the vines seemed very old, with a new growth only from their tops. I noticed this last method as prevailing especially on the slopes of the Lower Pyrenees, where a strong wine not very

unlike sherry, called Inruscon, is made. Probably no absolute rule can be given for the best mode of cultivating the vine; each climate and soil appearing to demand a particular mode, and a particular variety to produce the most favorable results. The vine seems to be a hardy plant, and to submit to any mode of training and pruning that fancy or judgment may dictate, and, when not too hardly treated, to give a more remunerative result than any other culture. It is claimed for the red table-wine of France, that, besides quenching thirst, it operates favorably on the system, acting as a tonic, and promoting the activity of the organs. The wines of "haut Bourgogne and Medoc" are generally esteemed as the best in France; and there it is claimed the culture of the vine, and fabrication and preservation of the wine, are best understood and practised. The first named are produced in portions of what were formerly known as the States of Burgundy near Dijon, and the latter near Bordeaux; the Medoc country lying on the banks of the Garonne, between that river and the sea. The best red wines of Bordeaux are made in the Medoc country, and the whites come from territory lying south of that city. But, although the wines of Bordeaux and Burgundy are generally held in high estimation, those that are held in good repute are produced in other parts of France.

The soil and climate of France seem to me particularly well adapted to all the hardier kinds of fruit; and on a strip of its territory on its southern border, along the shore of the Mediterranean, oranges thrive in the open air. Apples are grown in large quantities, especially in the western part, in Brittany and Normandy, both for fruit and to be manufactured into cider. Pears thrive in all parts of the empire, and are produced in large quantity and vast variety: the number of kinds that are met with in the market are, however, but limited, and consist usually of the larger sorts: those who supply the markets probably find it for their interest to confine themselves to but few varieties, and consult the taste of consumers as to size. Peaches are plenty, and magnificent in appearance; but, although often very good, their quality does not always correspond with their beauty. Apricots are fine; and green-gages and other plums are, in their season, very abundant. Of some fruits, France seems to raise more than is requisite for its own consumption; at least, I inferred so from seeing that the markets of London were in the early summer largely supplied with strawberries from that country, and somewhat later with cherries and apricots. So far as I have observed, it appeared to me that the favorite and most common mode of growing pears was upon quince-stocks; and I did not notice any striking peculiarity practised in the training or pruning of the trees. Without attempting to assign any cause for it, — climate, soil, or mode of cultivation, — I venture to say, that I think pears are, in France, generally smoother, fairer, and more free from spots or blemishes, than in Massachusetts. *Joseph S. Cabot.*

April 10, 1868.

THE GLADIOLUS RAMOSUS. *Messrs. Editors,* — I must beg leave to differ with your correspondent "E. S. R., jun." On page 78 of the August number, he says, "The finer kinds, such as the *ramosus* and *cardinalis* hybrids, were not adapted for open-air culture" (with this I agree), "and, in the greenhouse, bloomed at a season when flowers were not wanted." Now, here he is mistaken; as I find the *ramosus* varieties, one of my most useful winter-blooming plants, *blooming just when they are most wanted,* — viz., from December to February, — their beautiful tints of pink and crimson contrasting finely with the spotless white of the *Camellia Japonica alba.* My method of blooming them is as follows: Select strong bulbs, and pot them about the first of June in four-inch pots; set out of doors, and water moderately until they commence growing. As soon as they have rooted through the pots, shift into six-inch pots, keeping the bulbs about an inch below the surface of the soil. They are allowed to remain out of doors until the approach of cold weather, when they are removed into the greenhouse, where, with a moderate heat, they will commence flowering in December, and will all be wanted about Christmas and New Year's. In your correspondent's list of the Gandavensis section, he has omitted some of the finest varieties now cultivated. The Meyerbeer, La Poussin, Maria Dumortier, Comte de Morney, Achille, John Waterer, Raphael, Ceres, are too distinct and beautiful to omit in any collection. I have them now (Aug. 10) in full bloom. *H. A. D.*

PHILADELPHIA, August, 1868.

STOCKS FROM CUTTINGS. — It is a matter of vexatious disappointment to lovers of double stocks to grow seedlings, and to find at their blooming season that a number of them are single. The plan I adopt for perpetuating double-flowering plants amply repays the slight extra trouble which it entails. When the varieties desired to be increased are in full bloom, take off the lateral shoots beneath the existing corymb (before they show flower) at the lowermost joint, detach the two bottom leaves with a sharp knife, and prepare the cutting in precisely the manner in which those of other soft-wooded plants are treated; viz., by severing it horizontally at the base of the joint. Insert in pots prepared with one-half broken potsherds, and filled up with a rich, light compost; allowing a layer of silver sand to be at the top, in order to prevent damping off. Place them in a cold frame, and shade them until roots have pushed out freely. In potting off, use pots in proportion to the size of the plants. In this way, plants are produced more symmetrical in shape, and they bloom more profusely, than those generally raised from seed.

DR. HOOKER has pointed out, in a recent communication to the Linnæan Society, that the true *Fuchsia coccinea* is a totally different species from that which is so extensively cultivated in all regions of the globe under that name, but which is the *F. magellanica* of Lamarck, a species common in Chili and Fuegia. *F. coccinea* was introduced in 1788: it was published in "The Hortus Kewensis," and is now only known from living specimens in the Oxford Botanic Garden, and from dried ones taken from the Kew plant in the Banksian and Smithian Herbaria.

NOTES FROM MISSOURI. — The weather, on the whole, during the past month, has been quite favorable to all kinds of fruit. The interest in horticulture is fast increasing in this State. The May 30 meeting of the Jefferson-county Society at Victoria was very interesting, and the officers should send you a synopsis of their doings. They were addressed by Mr. Peabody, President of the State Society; and regaled between discussions by a most generous strawberry repast. The society furnishes the fruit; and, while its members are admitted free, outsiders are charged fifty cents. The plan works well. The old Meramac Society keeps up its monthly meetings, and increases in interest; while the N. E. Missouri Society recently held a very satisfactory fair and festival at Hannibal. During recent trips along the Missouri and Mississippi Rivers, we found every thing looking very fine and encouraging. Apples and pears promise well; peaches also. Chickasaw plums were ripe by the 15th of the month. Gooseberries and currants did very well, though in some instances utterly destroyed by insects, — the foliage by *Ellopia ribearia*, and the fruit by an undescribed Tineidan worm. At Hermann, we found the grapes looking exceedingly fine, and unusually free from disease or insects: the white and banded tettigonias both being comparatively few in numbers; and the grape-vine *Fidia*, though less numerous than last year, doing the principal damage. All the common varieties were heavy with fruit; while the new seedling "Hermann" hangs thick, with long, compact bunches, on Mr. Husmann's place. The prettiest lot of Hartfords and Delawares we found in Mr. Rummel's vineyard, where the Clinton, Taylor, and Ives were also doing unusually well. At Bushberg, on the Iron-mountain Road, Mr. Bush, undaunted by long and frequent failures, has planted many foreign, especially Hungarian varieties, which are all bearing well; though it is difficult to say what they will do in future. The soil, however, is so perfectly adapted to the grape, that Mr. Bush is hopeful of success with them. At Bluffton, we found the grape prospects still more startling; the unusual growth of vine, and weight of fruit, telling well how perfectly adapted was the soil. Here the Bluffton Wine Company has settled, — a company only organized on the 4th of July, 1865, and now owning three miles of land along the river, comprising seventeen hundred acres, with fifty-five acres in grapes, and sixteen leases taken. The oldest vines on the place have but five years' growth; and the company has two hundred thousand salable plants, and an experimental vineyard comprising ninety varieties. Those already most extensively planted are the Concord, Norton's Virginia, Delaware, Herbemont, Rogers's No. 1, Creveling, Cunningham, and Clinton, all of which do exceedingly well. They have six propagating-houses a hundred feet long, and three pits sixty feet long. Some of the bluffs along the river reach a height of five hundred feet, and the scenery is grand and wild. We found the red cedar growing in tolerable abundance, while an old red mulberry gave us with a few shakes a shower of luscious berries that rivalled Downing's Ever-bearing in flavor. That rather rare wild-flower, *Œnothera Missouriensis*, with its peculiar seed-pod and bright yellow flower, was in its full glory about the middle of the month; while the compass-plant, walking-fern, salvias, verbenas, and a host of other interesting plants, abound on the hills. The *Bumelia lanuginosa* — a shrubby, half-thorny tree, which blos-

soms in the axils — is also tolerably common; and it seems to us it would make a very good hedge-plant. The work of the so-called locusts (*cicadas*) is manifest all over the country; and they have been especially hard in some instances on the Taylor and Clinton grape-vines. Many of the apple-trees observed were affected in the limbs like the specimen we send. If you can explain it, you will gratify a great many of your readers hereabouts. Of wines we have no time to speak, and do the subject justice: but it is strange that the very best Catawba tasted in Mr. Husmann's cellar was from a second pressing; while the very best wine, to our notion, was made from the wild grape. *C. V. R.*

St. Louis.

Northern Illinois Horticultural Society, *Winter Meeting*, 1868. — The Northern Illinois Horticultural Society held its first annual meeting at Freeport, Ill., commencing Feb. 11.

The attendance was large, — larger than at any similar meeting ever before held in the North-west.

At ten o'clock, President Edwards called the meeting to order; Rev. Mr. Cary opening the session with prayer.

After a welcoming address, delivered by Mayor Sunderland of Freeport, responded to by the president, President Edwards addressed the society on the benefits to be derived from this organization, and the necessities for such an organization.

After the president's address, Hon. Elmer Baldwin of La Salle County read a very interesting paper on "Diseases of the Apple."

A committee of five was appointed to prepare a list of apples for cultivation in Northern Illinois, for the consideration of the society.

An able essay on the apple was then read by Mr. E. H. Skinner of Marengo.

Apple List. — The Committee on Apples made their report, which was adopted as follows [A for amateur cultivation, M for market]: —

Summer. — Early Harvest (A). Red Astrachan (A and M). Duchess of Oldenburg (M). Sops of Wine (M). Red June (M). Sweet June (M).

Fall. — Benoni (A and M). Early Pennock (M). Keswick Codling (A and M). Lowell (A and M). Haskell's Sweet (A). Fall Wine (A). Golden Sweet (A). Am. Sum. Pearmain (M). Dyer (A). Autumn Strawberry (A). Fall Orange (A and M). Fameuse (A and M).

Winter. — Fulton (A and M). Tallman's Sweet (A). Jonathan (A and M). Wagener (A and M). Dominie (A and M). Wine Sap (A and M). Willow-Twig (A and M). English Gold Russet (A and M). Westfield's Seek-no-farther (A and M). Yellow Bellflower (A and M). Northern Spy (A and M). Roman Stem (A and M). Minkler (A and M). Rawle's Jannet (A and M). Ben Davis (A and M). Perry Russet (A).

Strawberries. — Dr. Miller of Marengo read a very interesting essay on the strawberry. The suggestions of Dr. Miller drew out Dr. Warder of Cincinnati, who gave the practice of New-Jersey growers, who plant to make money. The ground, he said, should be cleanly cultivated, and mulched. Do not mulch too deep, nor too soon in the fall. Wait till the ground is frozen; then mulch

thinly. The sun is what you need to mulch against in winter; and in summer it is about the same thing. The deeper you stir the soil, the better. In considering varieties, the soil should also be taken into account, as some varieties are better adapted to certain soils than others.

Mr. Budd of Iowa spoke highly of Green Prolific for productiveness and as a market-berry.

Mr. Beebe of Iowa spoke of a new Iowa seedling, called the Kramer, which is regarded highly.

The Committee on Strawberries reported the following list for culture: —

For Distant Market. — Wilson's Albany.

For Near Market. — Green Prolific and Russell's Prolific, alternates; Downer's Prolific, with Wilson's Albany or some other staminate sort.

For Amateur Culture. — French Seedling, McAvoy's Superior.

For Further Trial. — Lennig's White.

The list was adopted.

THE RASPBERRY. — Mr. J. W. Cochrane of Cook County read a highly-interesting and ably-written essay on the raspberry.

During the evening session of the first day, Dr. Henry Shimer of Carroll County gave a highly instructive lecture on "Insect Life." He said, —

"We are living in a beautiful world, and in a beautiful portion of the world. Insect life had its origin before the creation of man. Remains of insect life have been discovered in the Devonian rocks of New Brunswick. Why were insects formed? 1. That they might enjoy life of themselves. 2. To produce variety and beauty in the world. 3. Because they are useful. They have their utilizing mission to fulfil. The fertilization of plants by their agency is one object of their creation. They are the marriage-priests of plants. They thus prevent deterioration of breeding in plants, which is as objectionable as in cattle.

"Insect anatomy is not so mean a thing as we might suppose. Insects are one of the great types of animal life. In insect architecture, we find much that is instructive.

"The beauties of the insects were dwelt upon. We look upon the wrong side of things when we despise the insects. We need to study them.

"How shall we subdue noxious insects? There are two methods provided: one is natural, and the other artificial means. Nature has provided five principal ways for subduing noxious insects. I give them in the order of their importance: 1. Epidemic diseases. 2. Insect enemies. 3. Birds. 4. Insectivorous animals. 5. Inclement seasons.

1. *Epidemic Diseases.* — He read here a paper on this subject, recently prepared by himself for the Academy of Sciences of Philadelphia. The title of this paper is, "Notes on *Micropus* (lygæus) *leucopterus* (the Chinch-Bug), with an Account of the Great Epidemic-Disease of 1865 among Insects." This interesting paper deserves space because of the general interest the farmers of the State have in the facts it contains, were not our columns so crowded.

Dr. Shimer does not believe the doctrine, that a dry spring will develop this insect. The seed of them was carried from our country by the epidemic; and

he does not believe they will appear for some years to come in large numbers.

2. *Insect Enemies.* — We find in insect life one insect preying upon another. Dr. Shimer gave many interesting facts illustrating the enmity of insects toward each other, enumerating the cannibal-insects, and giving the results of observations of the encounters of these conflicting species.

3. *Birds.* — The robin most condemned preys upon grubs and caterpillars; but he will eat cherries and grapes. Jays and quails are valuable birds as preying upon insects. He denounced the killing of quails as the greatest injury possible to the farmer. They should be protected. He said he was anxious to see a law passed to impose a hundred-dollar fine, and imprisonment to boot, upon any person who would wilfully and unnecessarily kill a quail. We ought to offer prizes for the protection of birds. The warblers are birds that do great service by their destruction of insects. So the sparrows are useful birds; also the fly-catchers, crows, orioles, and all the birds which run in the grass.

Dr. Shimer reviewed the artificial means to destroy insects, — such as changing crops, preserving birds, and fostering cannibal-insects. These are indirect means. Direct means often fail us; but there are many that will be useful to employ.

The Codling Moth. — In the East, the destruction of crops of fruit destroys the breeding-places of these insects: so they do not develop there as they do here, where our blossoms seem to endure more frost. So we have got to fight them by trapping them. But one man in a neighborhood can do little. There should be general co-operation.

But counterworking insects with our hands is a small thing compared with what we may do by properly applying natural agencies.

Dr. Shimer's lecture was listened to with marked attention, and heartily applauded.

At the morning session of the second day, —

Blackberries were up for consideration. Many members had had unfavorable experience in blackberry-culture. Kittatinny and Lawton ranked highest.

Mr. Plumb of Wisconsin said their State Horticultural Society had voted the Lawton a nuisance for two years. Occasionally it had succeeded in certain localities. He thought the secret of cultivation lay in mulching, shade, and protection.

Kitchen-Garden Culture. — An essay was read by Jonathan Perriam, superintendent of the farm of the Illinois Industrial University, on "Kitchen-garden Culture," — a practical essay by a practical man, too long to give even a synopsis of it here. The thanks of the society were tendered to Mr. Perriam. The essay will soon be published in the transactions of the society.

Cherries. — An essay was read by the secretary, from James F. Lester of McHenry County, on the culture of the cherry. The points in the lecture were, that it was most essential the buds should go through the winter safely. The buds of Heart varieties do not: neither do the buds of the Early May and English Morello when grafted on the Mahaleb stock; but, when worked on the

Morello stock, they almost invariably do, and bear full crops. As a remedy for birds, plant more trees.

Mr. Dunlap of Champaign County said the English Morello was a native-American cherry, Mr. Downing to the contrary. This cherry would not reproduce itself from seed. He did not recommend grafting it on Mazzard stocks: on Morello stocks it bore the most fruit. To prevent sprouting, he planted it deep, and threw furrows towards the tree. Mr. Dunlap also called attention to the Early May for canning.

How to save Girdled Fruit-Trees. — At the afternoon session, D. B. Wier of Lacon, Ill., sent to the secretary's desk a paper containing the following propositions: —

"1. That the bark of a tree is not, as has always been supposed, essential to the life and growth of a tree, only for a small portion of the year, and then not entirely so; or, in other words, the bark of a tree is like our fences, and performs the same services for the growing tree that they do for our crops. The crops would grow without the fence; but it keeps them from being destroyed, or protects them so that they will not be destroyed by outside influences.

"2. That the life of a tree is entirely in the sap-wood and root when in the dormant state, and in the same and the leaves when in the growing state.

"3. That the flow of sap, both up and down, is through and on the sap-wood, and not through the inner bark as some suppose.

"4. That the bark of a tree can be entirely removed without injuring materially the life or health of the tree, provided that the surface of the sap-wood can be protected by a proper artificial bark or covering which will answer the same purpose that natural bark does; which purpose is, and is only, to keep the surface of the wood from seasoning, or the natural channels for the flow of the sap from drying up, therefore interrupting the flow entirely: and this can be done with just as much certainty as we can remove the fence from around a growing crop, and replace at the same time with another equally good, and with as little danger and loss.

"5. When the bark has been removed from a tree by accident or other cause, even if a portion of the sap-wood is removed, and the surface be immediately covered with a proper artificial bark or its equivalent, the downward flow of sap will deposit a new bark on the surface from which the bark had been taken.

"Now, do not let any one say he has seen the bark taken from the tree on the longest day in June, or near that time, without hurting the tree at all. There is no doubt that many of you have seen what appeared to be *all* the bark taken from a tree at that time without injuring it, and apparently doing it good; but the bark was not taken off, and the old, almost worthless layers were removed, leaving the bark just formed or forming on the sap-wood. The annual layer of bark, I believe, forms first; and then the new layer of alburnum forms between it and the sap-wood. These facts go to show that a tree girdled by mice, rabbits, or from other causes, is *not* dead, as has always been supposed, as entirely so as a man with his head off. It merely wants a little care to induce it to grow as if nothing had happened to it.

"To tell how to save trees injured in this way will be to tell how I saved over a hundred trees, seven years planted, *completely* girdled by mice in my orchard a year ago last month. There had been for some time a heavy snow on the ground; and mice being plenty and in a starving condition, with nothing else to eat, they ate *all* the bark from the trees so far as they could reach, some of them for a foot up and down all around, and portions of the sap-wood all around, some of them at least half an inch deep. As soon as the damage was discovered, — which was the first thawing days, — I banked the snow up around them for a foot above the injury; then, as fast as the soil thawed enough, I banked with it about the trees to the same height. This was all the attention they received; and to-day they have all the damaged parts covered by almost as thick a coating of bark as the uninjured portion of trees. My directions, therefore, for saving trees girdled by mice or other means, would be to follow the practice used to save my own when girdled within a reasonable distance of the ground: when done higher up, this course would be impracticable, and we should have to look to some other covering than soil to protect the surface until a new bark was deposited. Common clay may be used for this purpose. If too high up to reach by banking, bind the clay on it. The sooner the surface is protected after injury, the better. The death of the tree, when girdled, is caused by the seasoning of the sap-wood."

LIST OF PEARS. — The Committee on Pears reported the following list: —

Summer. — Bartlett, Doyenné d'Été, Tyson, Rostiezer.

Autumn. — Flemish Beauty, Howell, Belle Lucrative, Duchesse d'Angoulême, Louise Bonne de Jersey, Seckel.

Winter. — Winter Nelis, Lawrence. This list was adopted.

At the evening session, Dr. Gregory, Regent of the Illinois Industrial University, addressed the convention on the objects and aims of the institution which it was his pleasure to represent. The address was listened to very attentively and with great interest.

Dr. Gregory was followed by Dr. Warder on the grape. With a grape-vine in his hand, and his whole soul thrown into his subject, he was listened to till a late hour with marked attention.

After Dr. Warder's address, Mr. Cochrane offered a resolution, that the Concord, Hartford Prolific, Clinton, and Connecticut Valley, are the only profitable varieties for cultivation in Northern Illinois.

The resolution elicited considerable discussion, but was finally adopted.

Mr. Douglas of Waukegan moved that the Delaware be added to the list for cultivation in special localities.

Mr. Rosensteil of Freeport said, that, with proper propagation, it would grow with good culture where any grape grows. He had known the grape in Germany many years before it was known in this country, and was most positive it was a foreign grape. It was known in Germany under the name of Gutedel. The report of its being an American seedling, he says, is a humbug.

The Delaware was added to the list.

CURRANTS. — At the morning session of the third day, the Committee on Currants recommended the following varieties for general cultivation: —

Red Dutch, White Dutch, Victoria, Cherry, White Grape.

The Long-bunched Holland was recommended for trial.

DECIDUOUS TREES. — Mr. Budd of Iowa presented an essay on deciduous trees, confined mostly to the Ash family. One point he made was, that every timber lot should be protected from fire and cattle, just as grain is.

A number of essays were read by their titles, and referred to the Publishing Committee, with power to publish or not, at its discretion.

At the afternoon session, there was considerable debate upon stock *vs.* root grafting, arriving at no conclusion as to which was best.

The Committee on Evergreens reported a list for culture, which was adopted, as follows : —

For Timber Belts. — White Pine, Norway Pine, Norway Spruce, Scotch Pine, Austrian Pine, and American Arborvitæ.

For High Screens. — Norway Spruce and American Arborvitæ.

For Low Screens. — Siberian Arborvitæ, American Arborvitæ, Hemlock, and Red Cedar.

Ornamental Trees. — All the foregoing, and the White, Black, and Red Spruce, Picea Pichta, Cembrian Pine, Pinus Mitis, Irish and Swedish Junipers.

Shrubs. — American Yew, Tamarix-leaved and Waukegan trailing Juniper, Savin, Pinus Maghus, Pinus Pumilis, and Andromeda Floribunda.

Dr. Walsh of Rock Island, State Entomologist, delivered a short *extempore* address on the codling moth, canker-worm, and bark-louse, and the means of exterminating these pests, — a most valuable address, and abounding in ideas of great worth to every orchardist in the West.

At the evening session, Mr. Edgar Sanders of Chicago read a most interesting paper on floriculture.

D. Wilmot Scott of Galena gave a description of a new method of heating a window propagating-tank by means of a kerosene-lamp. The chimney of the lamp is made double, of tin, and to hold water ; in other words, is the boiler. The water in the chimney is connected with the water in the tank by means of pipes, — one entering the chimney at the top, and the other at the bottom ; thus creating a flow of water from the chimney through the tank according to certain well-known principles. The advantages of the lamp as a heater are constancy, steadiness, and ease with which it can be regulated by turning the wick up or down. This tank enables ladies to do their own propagation of roses and flowers from cuttings, and starting seeds.

Mr. Greenbaum of Wisconsin said he was using large lamps in heating two propagating-tanks thirty feet long. Preferred the mode to any other, as being cheaper.

After three days' session, late in the evening of the third day the society adjourned. Prominent horticulturists from Ohio, Indiana, Wisconsin, Iowa, and Minnesota, were present ; and the meetings were of great profit to all. The Northern Illinois Horticultural Society, though in its infancy, has grown into proportions of manhood, and laid out work for the future which societies of greater age might do well to imitate. *D. W. S.*

THE once-famous Botanic Gardens of Calcutta must now be numbered amongst the things of the past; for what of their contents resisted the force of the cyclone of 1864 have been swept away by that of the 2d of November last, together with the rich and varied collections procured in the interval by Dr. Anderson, the talented superintendent.

AGAPANTHUS UMBELLATUS. — This fine old plant is very useful for decorative purposes during the latter part of the summer and early in the autumn. A well-grown specimen with ten or twelve large umbels of its bright blue flowers is a fine object; and when we consider that the plant is nearly hardy, and of the easiest culture, the wonder is that it should be so much neglected. It is readily increased by offsets. These, when potted in any rich earth, soon make good plants: they have strong, fleshy, fibrous roots; and, when these fill the pots, the plants should be shifted into larger ones. By giving them plenty of pot-room, they soon make fine large specimens. They do best out of doors in summer, and in winter they merely require protection from frost and moisture. It is a plant that most people could grow, and winter with very little trouble.

Those who know the plant, and who may possess good specimens of it, would not, I feel sure, like to remove it from their collections to make room for any mere novelty. — *Florist.*

NOTES ON STRAWBERRIES. — Each year brings its quota of new seedlings, and the present one is no exception. In the eyes of the originators of some of these new plants, — many of them hardly merit the name of new varieties, — their productions have a greater merit than any heretofore known; and they expect others to see the fruit in the same light. Other patient experimenters are willing to wait for results, and try again and again, until they feel that they have something worthy the attention of pomologists. The ease with which strawberries are raised from seed, and the short time required to obtain results, have increased the number of seedlings within a few years at a fearful rate. Many so-called new berries are so much like older ones, that it is impossible to remember any distinguishing characters about them. Our catalogues become filled with names, without any really distinct fruits belonging to them. No one should exhibit, much less offer for sale, a strawberry, unless he can show that, in some respects, it is superior to the varieties already in cultivation. Some growers of seedlings have strange notions of the possibilities in fertilizing; and we are often told that such a berry is from the Wilson, for instance, crossed by two or three others. Now, one seed of the many which a strawberry contains can only be fertilized by the pollen of one other berry. If the pollen of two or more other varieties be applied, that of one only will be effective. We give notes of some of the newer sorts that have come under our notice during the season just past: —

Boyden's No. 30. — This variety is a seedling by Seth Boyden, the originator of the Agriculturist Strawberry. It was exhibited last year by Mr. Boyden; and, this year, has been tested by several others. The vine is of remarkable size, and vigor of foliage; and the fruit is probably larger than that of any other

variety. The color is of a fine scarlet; and the berries are of a good conical form, and of moderate firmness. Flavor not high, but pleasant. The fruit often measures six inches in circumference, and retains a good shape not often seen in large berries.

Black Defiance. — This is a seedling by Mr. E. W. Durand, who produced Durand's Seedling. It is a good-sized, conical berry, somewhat disposed to coxcomb. The color is very dark crimson, reminding one of that of the old Black Prince; solid, and remarkably juicy; flavor very sprightly and rich, without too much acidity. This variety received the premium at the New-Jersey State Exhibition as the best new seedling. Mr. Durand presented six other seedlings; viz., Regulator, Glossy Cone, Duke, New Jersey, Luxuriant, and Brilliant. Of these the committee considered two worthy of special notice, — the

Luxuriant, — A large, flattened, globose fruit, very uniform in shape and size, of a very good flavor, and remarkably sweet; and the

New-Jersey, — A crimson, conical, white-fleshed, and showy fruit of very good quality.

Lady of the Lake. — A new seedling by J. Scott of Brighton, Mass. A short, conical fruit, of good size; scarlet, inclining to crimson; moderately firm, sweet, and of fair flavor. Some of our Massachusetts friends think that in this fruit will be found all the good qualities of the Wilson's Albany, without its objectionable acidity.

Wilder's No. 13. — A conical berry, of excellent shape, and remarkably uniform in size. It is not among the largest, but large enough. The surface is firm, and of a brilliant scarlet, presenting that polished appearance so noticeable in the Triomphe de Gand and La Constante. Flavor remarkably delicate and pleasing. This is the result of years of experiment, and the one among thousands of seedlings considered by its originator as combining the most desirable qualities. A cross between La Constante and Hovey's Seedling. We hope that Col. Wilder will accede to the wishes of his pomological friends, and allow this excellent and handsome fruit, which cost him so much labor to produce, to bear his distinguished name.

Romeyn's Seedling. — This new variety, which we noticed last year, has appeared again at the various shows. The plants we have seen at the exhibitions, said to be of field-culture, were abundantly fruitful. The fruit is much like the Triomphe de Gand; but it is claimed to be better, more hardy, and more productive. If such is the case, it will soon become popular without the use of extravagant advertisements.

Barnes's Seedling proves to be an excellent market-fruit. It has been exhibited from Ten Eyck Brothers, Monmouth County, N.J., by S. B. Conover, in packages taken from a lot sent to market; and attracted much attention by its large size, firmness, and general good qualities.

Cremont. — This old variety is now so rare as to have all the interest of a new one. It originated in Louisiana, and had its day of popularity. It ranks among the large varieties, and is regarded as particularly valuable for forcing. — *Agriculturist.*

CONDITION OF THE CROPS IN JULY. — The following is an abstract from "Condition of the Crops," in "The Monthly Report of Agriculture" for July: —

Corn. — The most remarkable fact in connection with the corn crop of the present year is the great increase of its acreage in the South; the difference in number of acres between the present and preceding year being more than two millions and a half. A slight decrease is apparent in the eastern seaboard States, resulting from the unpropitious character of the recent cold, wet, and backward spring, which sadly interfered with planting. A careful estimate of the acreage shows a decrease of 49,609 acres in eight States, and an increase of 3,108,215 acres in the remaining States, as follows: —

DECREASE.

	Acres.		Acres.
Maine	3,300	Connecticut	9,511
New Hampshire	3,184	New York	12,588
Massachusetts	1,985	New Jersey	8,818
Rhode Island	1,719	Maryland	8,204

INCREASE.

	Acres.		Acres.
Vermont	1,679	Tennessee	127,215
Pennsylvania	57,106	West Virginia	13,131
Delaware	6,697	Kentucky	207,307
Virginia	70,775	Missouri	407,942
North Carolina	216,927	Nebraska	16,145
South Carolina	89,764	Kansas	63,411
Georgia	255,987	Iowa	236,683
Florida	48,728	Minnesota	25,500
Alabama	43,827	Wisconsin	32,361
Mississippi	313,109	Michigan	48,146
Louisiana	397,291	Ohio	178,397
Texas	132,229	Indiana	100,626
Arkansas	376,762	Illinois	366,692

These figures show an increase of over 3,000,000 acres in corn, making about 36,000,000 in the United States, — an advance of nine per cent. The percentage of Louisiana reaches sixty-five, that of Arkansas forty-seven, that of Kansas thirty, Mississippi twenty-five, Nebraska twenty-five, Missouri twenty-two, Texas eighteen, Minnesota seventeen, Iowa fifteen, Illinois and Ohio eight, Indiana four.

The drought in the South has retarded somewhat the growth of corn; but its condition in that section is generally good. In the West the average is high, with the exception of Ohio and Indiana, where the weather has been somewhat unpropitious and storms destructive. In the East, on the last of June, the growth was small; but the hot weather of July has brought a large portion of the crop into splendid condition.

Wheat. — The condition of wheat, as shown in the July returns, is above the average for last year in all the States except Vermont, Connecticut, the Carolinas, Georgia, Florida, Alabama, Mississippi, Texas, and Nebraska. The season has been peculiarly favorable to the growth and ripening of this great bread crop in all except the Southern States.

The favorable reports are so numerous, in the Western States especially, that it is unnecessary to give them in detail. The general tenor of reports is that "Winter wheat bids fair to be the largest crop we have had for many years;" "The yield will be immense;" "The prospect was never better for a large

crop ; " " The weather has been remarkably seasonable ; " " The universal opinion is that the crop will be the largest ever grown in the country ; " " Crops all over the country were never in a more flourishing condition." Our Lafayette (Wis.) correspondent says he has never seen, in a residence of forty years, a finer prospect for wheat as well as all other crops, and that the same might be said of several adjoining counties. In Highland County, Ohio, the acreage of winter wheat is estimated at three times that of last year ; and in Monroe County, Missouri, the acreage of wheat is thought to be threefold that of 1867. In Kalamazoo County, Michigan, an unusual yield is reported, the best fields being estimated at forty bushels per acre ; and in Bourbon County, Kansas, it is claimed that many farmers will show a similar yield.

Exceptions to this showing are frequent in the South where rust was more or less prevalent. Some loss from the same cause resulted in Maryland and in the similar latitudes in the West. In a few localities, loss from lodging is reported. Unusual exemption from winter-killing is manifest ; reports of damage from freezing coming only from Northern Vermont, some portions of the Ohio Valley, and a still more southern belt. Very few accounts of destruction by the midge are received. In Lebanon County, Pennsylvania, this insect is charged with taking one-third of the crop. In Clinton, Indiana, some loss is also sustained from insects. In Queen Anne County, Maryland, the extreme heat shrivelled the grain in ripening, leaving it light and poor.

In the Miami Valley, thousands of acres of wheat just ripening have been destroyed by floods ; and other crops suffered from the same cause. Other sections of the State were visited by destructive rains at the same time ; and much injury resulted to wheat, corn, and other crops. With a successful harvesting of the spring wheat, it may safely be declared, in summing up the local reports, that a larger number of bushels of wheat, by many thousands, will be grown in the United States in 1863 than in any previous season.

Cotton. — Returns from the cotton districts indicate everywhere a reduction of the acreage in that crop, with the exception of Texas, which shows an increase of thirty-three per cent over last year ; and Alabama, where there appears to be no material change in the figures. The falling-off in Mississippi appears to be eighteen per cent, twenty-four in Louisiana, twelve in Georgia, thirteen in Arkansas, eighteen in South Carolina, twenty in Tennessee, and thirty-two in North Carolina. The average reduction in acreage is about ten per cent. With this diminished breadth, there is cleaner and better culture, and a more general use of fertilizers ; so that the yield may be quite equal to last year, the season being equally favorable, with a like experience as to insects and other causes of injury. It is yet too early to predict the result ; but the present *status* of the crop is fairly shown in this statement.

One county in Arkansas (Desha) reports less than a third of the acreage of last year, while the area in corn is three times as large. Such indications are hopeful. The correspondent, as might be expected, declares that the crops are all in splendid condition ; and, if not injured by drought, the finest yield for many years will be the result. A want of rain has been apparent in the Gulf States, and a severe drought has afflicted Western Tennessee ; but few com-

plaints of its effects upon cotton are made. So far, the plant enjoys a very general exemption from casualties and injuries.

Rye, oats, and barley promise abundant crops: no serious drawbacks are reported, and few complaints of bad condition are received.

Potatoes, so exceptionably unproductive last year, are in unusually fine condition; and the average is increased in every State except Rhode Island, — the natural result of extremely high prices of last year's crop.

Fruit is variable; apples and peaches less promising than usual. Vermont, New Jersey, Delaware, Maryland, Virginia, Arkansas, Missouri, Iowa, Illinois, Indiana, Kentucky, and West Virginia, make a worse record than other States as to apples. Peaches will be less abundant than apples; New Jersey, Maryland, and Delaware promising but half a crop, and Illinois and Michigan showing a considerable reduction. A fair promise of grapes is indicated.

Tobacco covers as large an area as usual in Virginia, Kentucky, and Connecticut; somewhat less in Indiana, Illinois, and Missouri. Its condition is good in Kentucky and Michigan; elsewhere, a little below an average.

Sorghum is generally doing well in the West; not so well as usual in the middle belt of Southern States.

The Golden Champion Grape. — A visit to Dalkeith, purposely to see this grape, has confirmed a previous impression that it is in every respect first-class. I first saw berries of it two years since, and was struck with its wonderful size. I saw it again last year, and looked forward to a proof of its character this season; and the result now to be seen at Dalkeith fully justifies the assertion that it is everybody's grape. It can be grown anywhere, either in a cool vinery or in the early house; is as free and hardy as the Black Hamburg, fully equal to it in flavor, and produces an abundance of superb bunches, the berries being unusually large, and the bunches close and well formed. Compared with Buckland Sweetwater and Golden Hamburg under the same treatment, the Golden Champion is the best; and I venture to predict that very soon the two first named and others of our common white grapes must give way before it. Of course, it is not to be compared in point of flavor with our varieties of Muscat of Alexandria and Frontignans: but these require a considerable amount of heat, and cannot well be done without; while the Golden Champion is a hardy, easily-done grape, which can be grown readily in any common vinery, and, in my opinion, will be a first-class pot variety also. I am afraid to say all I think about it, lest I should be regarded as an enthusiast: at the same time, I cannot refrain from expressing my firm conviction that this and the Black Hamburg will be the two acknowledged favorite white and black grapes for general use throughout the land. Fine as it is just now at Dalkeith, it will be seen much finer another year. I say this because I believe in this grape just as much as I believed in the Duchess of Buccleuch, another of Mr. Thomson's seedlings, from the beginning; and examples of this, as seen now at Dalkeith and other places I could name, show plainly how hard propagation and other causes should make us cautious of condemning a new grape until ample time has been allowed for fairly testing it. — *William Dean, in Gardener's Chronicle.*

SUEL FOSTER, Muscatine, Io., writes us, "I have lately been on a journey to Chicago, thence to Waukegan, thirty-five miles north on the lake, where I saw acres, and tens of acres, of seedling evergreens, pears, &c.

"We in the West are beginning to appreciate the evergreen-trees, and are going to plant them more and more from year to year; and we nursery-men are beginning to anticipate the demand, and are starting them by the million.

"I have been in the West a good many years; but I never before saw so extensive, grand, and beautiful a sight as our prairie-farms now present in shocks and stacks of wheat and luxuriant growth of corn. The wheat-crop of Iowa is very heavy, and the prospect of corn is equally good."

CAMPANULA CARPATICA. — As a summer bedding-plant, the old blue *Campanula carpatica* is worthy of a much wider recognition. Being a hardy perennial, it will do well in almost any situation; but it should not occupy a damp and low position during the winter. It commences to bloom by the beginning of June, and will continue to flower through the summer. The seed-pods should be gathered, as they have an unsightly appearance, and their removal tends to induce the production of fresh flowers. The tufts should be lifted in early spring, divided if necessary, and replanted, using some good soil about the roots. It is invaluable for ribbon-borders, and, when once tried, will not be readily abandoned. There is a so-called variety to be met with in some places, under the name of Bowoodiana, said to be much darker in color and more branching in the habit than the old variety. — *Florist.*

NAPOLEON III. STRAWBERRY. *Messrs. Editors,* — With your permission, I desire to make known my success with this comparatively unknown variety. I would state, in the first place, that I am not *pecuniarily* interested in any manner in the sale of any plants; giving to my numerous friends what I raise in excess.

I have fruited Napoleon III. for two years upon the same soil, and subjected to precisely the same culture, with the following varieties, — Wilson's Albany Seedling, Triomphe de Gand, Lady-Finger, Bartlett, Mead's Seedling, French's Seedling, Royal Hautboy, Dr. Nicaise, Charles Downing, Green Prolific, Golden-seeded, Golden Queen, and quite a number of unassuming ones; and, if I were to be limited to a single variety, *that one would be Napoleon III.* It is very hardy, withstands the intense heat of the sun, stools but moderately, bears its fruit upon long and strong fruit-stalks, coxcombs but little more than the Triomphe (plants of second-year fruiting almost lose coxcomb propensity, being almost purely conical), and yields a mass of large, delicious, white-fleshed fruit. Rain, perhaps, affects the color of the fruit more than any other variety: but, taking all in all, I think its superior has not yet come forth; and it is a variety that I do not see how any amateur can well afford to be without. *S. B. Heiges,*

YORK, PENN. *Secretary of Penn Fruit-Growers' Society.*

[We are glad to give space for our correspondent's experience with the Napoleon III., and regret that we have not yet fruited it. We have a good bed set this spring; and next year we hope to speak of its merits from personal acquaintance. — *Eds.*]

MILDEW. — At the present date (Aug. 12), mildew has appeared on the following varieties of grape-vines, those named first being most affected: Dana, Delaware, Diana, Hamburg, Clara, and To Kalon (bad); Creveling and Rogers's 15 (slightly); and Iona and Israella in the worst possible situation — wet and undrained — are a little affected on the lower leaves. The above-mentioned vines are in a garden where the soil is very rich and damp; but in a little vineyard I have on raised banks or terraces of light sandy soil, perfectly drained, the Iona, Israella, Adirondac, Delaware, and Rogers's 15, do not show a speck of mildew. The Una and Cottage, Mr. Ball's new seedlings, are perfectly healthy in the wet soil of the garden.

The fruit of Rogers's 15 in the same situation is mildewed a little, and some clusters of the 19 are affected with a kind of black-rot.

Allen's Hybrid is growing in various places in the worst part of the garden, green, vigorous, and untouched by mildew.

In the garden of Alfred Loring, Esq., of Hingham, Mass., I recently saw beautifully healthy vines of the Allen in full bearing, and also the Montgomery Grape with very fine bunches. *J. M. M., Jun.*

ARISTOLOCHIA GOLDIEANA. — This remarkable West-African species flowered for the first time in England last summer in the Glasgow Botanic Garden. Its flowers from the base of the tube to the apex, measuring along the curvature, are twenty-six inches in length; and across the mouth, eleven inches in breadth. It was managed thus: Early in spring, the tuber was repotted in a mixture of two parts turfy loam, one of leaf-mould, and one of sharp sand, being watered but sparingly at first. In autumn, the stem died back to within three or four inches of the pot, from which water was entirely withheld during winter. The temperature of the pit in which the plant was brought into bloom ranged from 65° to 70°, with a slight bottom-heat.

PYRETHRUM GOLDEN FEATHER. — This pretty and distinct dwarf-growing, yellow-leaved variety of the common feverfew has proved itself, during the past summer, to be a very useful and effective bedding-plant; its dwarf, feathery habit and deep golden color forming an elegant contrast to the other colored-leaved plants now so much employed. We have used it as an edging to a mass of *Amaranthus ruber* with excellent effect. The Floral Committee of the Royal Horticultural Society, too, has at last become satisfied of its merits, and given it a first-class certificate.

OF all the palms, *Chamærops excelsa* is the hardiest. *C. humilis*, which is indigenous in the south of Europe and grows well at Montpellier, is very hardy when adult, but tender in the young state. M. Sahul, a nursery-man of Montpellier, had, side by side, beds of young plants of *C. humilis* and of *C. excelsa*, of one or two years' growth, each plant having three or four small leaves, exposed to a severe frost in January last (therm. 10° Fah.); and all those of *C. humilis* were destroyed, while those of *C. excelsa* were unhurt. Adult plants of *C. humilis* were not injured.

THE following, which we take from the correspondence of "The Kansas Farmer," is a very pleasant indication of the progress vine-culture has already made in Kansas. The idea of alternating the Delaware with the Concord may be a good one, and is at least worth trying: —

"Mr. Poirier has the largest vineyard, I think, in the State, — nearly or quite twenty acres. His vines are chiefly Catawba, Isabella, and Concord; though he has smaller quantities of more than fifteen other varieties. His experience of this year somewhat modifies that expressed last year in the columns of 'The Farmer.' He does not feel quite so well satisfied with the Iona, but reserves judgment for further observation and experience. The Delaware grows in favor with him: his vines are this year laden with fruit. He thinks, that by planting the Delaware alternating in the row with some rapidly-growing vine with heavy foliage, as the Concord, the shading it will receive thereby will prove beneficial, and the result all that can be asked.

"I would not like to venture my reputation for veracity on a statement of the tons of grapes he calculates that his vines will ripen this year; but there are acres of vines laden with full, plump bunches.

"Mr. Poirier informed me that he found his grapes increased in richness with the age of the vines. He regards the Delaware as superior to any other grape for wine: and a friend who accompanied me united with me in the opinion, after testing several kinds of his wine, that the Delaware was far the best; which you will remember was also the report of the Wine Committee of the Leavenworth-county Fair of 1867, where Mr. Poirier's Concord, Clinton, and Catawba wines carried off the premiums from all competitors. and his Delaware was adjudged the finest native wine ever tasted, not inferior to any foreign still wine. His still Delaware, tasted by us to-day, is one year old, with as much body as the best brown sherry, and a flavor superior. To us (and my friend is an experienced dealer in liquors) Mr. Poirier's Catawba seemed the best Catawba we had ever tasted. He had other wines, but inferior in quality to the Catawba and Delaware: one made from the Taylor's Bullet Grape, which much resembled the common sour wines of the Rhine."

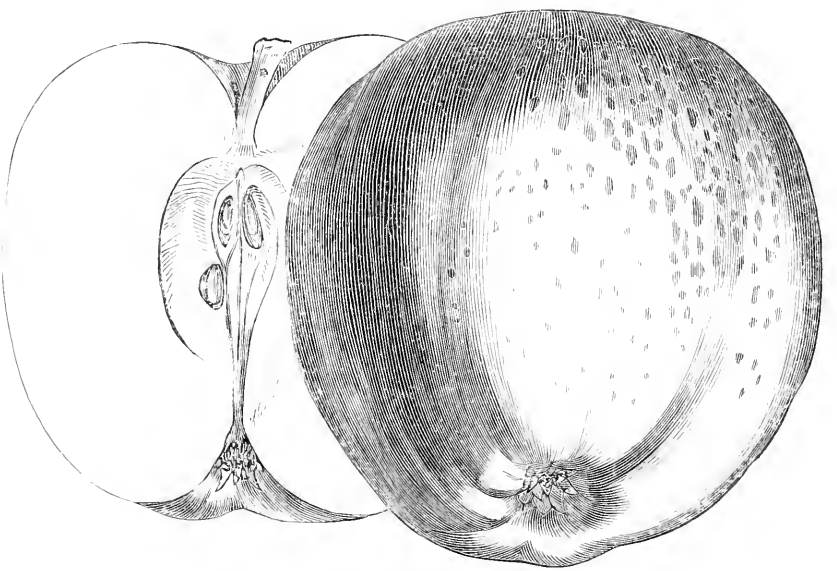
THE theory of annual rings in respect to the formation of wood is at least open to occasional misinterpretation, as appears from the evidence of a stem of *Sequoia gigantea* (the great tree of California), recently exhibited before the Botanical Society of Edinburgh. In this specimen, it was remarked that from five to ten apparent woody rings were visible on what is well known to be an annual growth. Several of the known annual growths averaged, and in some cases exceeded, half an inch in breadth; while, in a piece of wood direct from California, not less than twelve distinct prominent rings, or markings, were visible over half an inch of surface. These trees, it was observed, are most successfully transplanted in summer.

ORD'S APPLE. — This, though an old apple, is nevertheless comparatively unknown; and yet as a dessert-fruit, in the months of February, March, April, and May, it is unrivalled, being as fresh, crisp, and juicy then as most other

apples are in September and October. Before Christmas, it is sharp and sour; but, in the late spring months, its freshness, and piquancy of flavor, is something remarkable, — so much so, that it seems as if it had been just gathered from the tree, — and yet combined with a peculiar softness of substance, like that of the White Calville. It is also an excellent cooking variety in the spring months.

Its appearance is somewhat against it; for it might well be termed ugly, — nearly as unprepossessing as that richest of all apples, the Cornish Gilliflower. It is, however, much relished and sought after by all who have tasted it.

It is of medium size, oblong inclining to ovate, flattened at both ends, obtusely angular on the sides; eye small, closed, depressed, set in a narrow irregularly-formed cavity; stalk about half an inch in length, slender, rather deeply inserted; skin thick, and always of a greenish color when on the tree, tinged

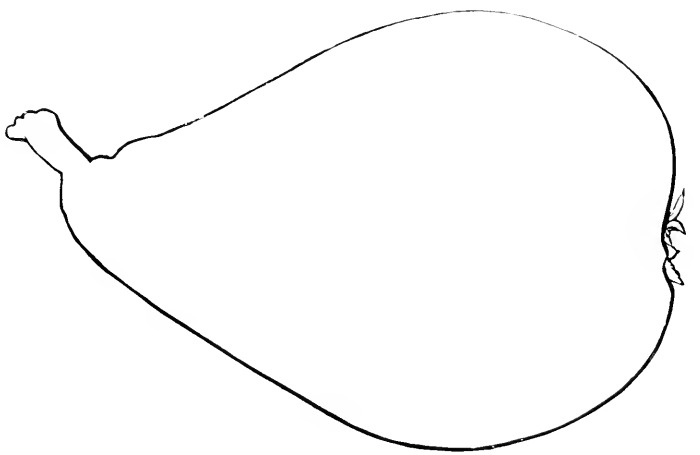


with reddish-brown, and thickly spotted with numerous copper-colored or ferrugineous specs on the side next the sun. After the fruit has been some time gathered, the green color changes to a yellowish shade. The flesh, when quite ripe, is of a yellowish tint, firm, but crisp, juicy, and tender, sweet, and very refreshing, with a slight perfume.

The tree itself is hardy, free-growing, and an abundant bearer. The fruit, however, would be benefited by being grown in a warm situation, it being so late in ripening. It is perhaps questionable if it would succeed in the North; but, for the South, it is highly to be recommended.

It was raised at Purser's Cross, Fulham, by the late John Ord, Esq., about ninety years ago, from seed of an imported Newton Pippin, and was sent out from the Hammersmith Nursery. The variety is figured in the "Transactions" of the London Horticultural Society (ii., 285). — *Florist.*

Beurré de Jonghe Pear. — Among the varieties of pears that are sure to occupy a permanent place in our collections of hardy fruit-trees, that which bears the name of M. D. Jonghe of Brussels must, without doubt, become one. As yet it is but little known, not having, so far as we are aware, been ripened in this country; but from what we have seen of it in Belgium, and judging from fruit grown in the neighborhood of Brussels, we have no hesitation in speaking of it as one of the finest pears in cultivation.



The fruit is very handsome in its shape and outline, being even and regularly formed; the skin is yellow, very thinly covered with bright russet, which gives it a golden appearance; the eye is open, and set in a shallow basin; stalk very short, inserted on the end of the fruit; flesh yellowish, very tender, buttery, and melting, as much so as in Marie Louise, but far richer in flavor, and with a fine perfume. It ripens in the middle of February. — *R. H., in Florist.*

Early Rose Potato. — We have received from Mr. J. J. H. Gregory of Marblehead, Mass., some very choice specimens of this variety, and have put them to the practical test of boiling and baking. Baking a very early potato is a pretty severe test of its merits; but, in our opinion, the baked were the better of the two.

The Early Rose is dry, mealy, and well flavored. It has all the characteristics that make up the goodness of the best late varieties; and, as to its habits and earliness, we quote Mr. Gregory, who says, —

"It is a very vigorous variety; the stalk being rather short, very stout, while the leaves are large and thick, resembling the Early Goodrich. With me it is at least a fortnight earlier than the Early Goodrich; while it is of better quality, cooking dry and light throughout. It proves to be very productive; while on good soil they run much larger than Early Goodrich, with fewer small ones. I consider it a great acquisition."

DUTY OR NO DUTY. — No doubt this question has often been suggested of late to our American nursery-men and horticulturists, and perhaps in many cases considerately and wisely settled. I am consciously unable to treat the matter as it deserves, possibly may suggest nothing new; but believing, as I do, that it is a question which has most important bearings on the interests and prosperity of our horticulture, I am led to recur to the matter by noticing the reply to "Importer, N.Y.," in your Letter Box for the present month, which recommends the entire abrogation of duty on all imported seeds, trees, plants, and shrubs.

It seems to us that this would take away a most valuable safeguard from the nursery-men and fruit-growers of our country, and open the way for an endless amount of mercenary and unscrupulous importation, which would damage the interests of our horticulture to an extent hardly to be realized.

Though we would speak with a modesty becoming one of the brotherhood, we are bound to believe that no class of persons is more closely identified with the permanent, healthful growth and prosperity of our land than our nursery-men, horticulturists, and fruit-growers, who are continually expending a vast amount of time, capital, and skill in selecting all that is most promising in the products of foreign lands; in planting, acclimating, and thoroughly testing these selections on our soil; and in offering to the home-market whatever proves to be of real merit. They are dependent, of course, on the profits of their trade, and pay protective prices for means to carry it on. Now, if the duties on such importations are to be swept away, and the stock from our American nurseries is to be brought into direct competition with the low-priced-labor products of Europe, it must result in a most disastrous injustice to a large and prominent class of our business men. It is hardly an apology for this, that the removal of the impost will lead amateurs and private planters to import more generally, and thus further the interests of our horticulture. Those who do this in the line of an extensive and established business are enabled to do it with unusual facilities, and with all the wisdom and judgment which experience can give: they have a certainty of satisfactory success which no amateur could reasonably look for. To deprive them of the protection which the present tariff secures would be most lamentably discouraging to every effort and enterprise in this direction, and necessarily prove a most harassing impediment to this important branch of American industry. Is it not eminently just, and essential to our truest horticultural interests, that they should have the fullest advantage of the duty as at present afforded?

I believe that the experience of the past has also taught a lesson in the same direction. It is known that there have been, in many of our large cities, *agents*, so called, of foreign nurseries, who have offered trees, plants, and seeds of foreign growth at astonishingly low prices: which it is fair to presume were such stock as could be landed here at the *lowest rates*, without regard to its quality or adaptation to our climate; in many cases, no doubt, *mere refuse*, for which the producer could find no market except by means of such a second-hand trade. As an occasion of thorough vexation and disappointment to the unsuspecting

cultivator, such stock as this could only find a parallel in Patent-office importations under the old *régime.*

It was, as I understand it, to put a stop to such unprincipled foreign speculation, as well as for other reasons, that, in response to a petition from some of our nursery-men and tree-growers, Congress, a few years since, imposed the thirty-per-cent duty which it is now proposed to repeal. The advantage of this impost has been manifest. It has acted as a check upon the selfish interests of those importers who were flooding the country with worthless trash, and led them to seek articles of real value, on which they could afford to pay the duty, and which they could sell at prices both remunerative and reasonable.

Another valuable result from the impost has been to develop the resources of our own country, by the home production of certain kinds of stock which were formerly obtained almost wholly by importation. Witness the large increase in the culture and sale of home-grown evergreens, which have been produced in immense quantities within the past few years by growers in the West, exhibiting capabilities of our soil and climate which might never have been realized had not the increased duty price of the imported stock led our enterprising cultivators to develop home resources for the cheaper production of a better article. See also the marked advance in the home-culture of fruit and forest tree seedlings; which have always been a most prominent article of importation, but are now produced on our own soil in largely increasing quantities from year to year, and with the most promising and satisfactory success. Who can question but that, in this respect, the duty has given a most effectual impulse to the progress of our horticulture? and who could doubt but that a continuance of the present tariff would tend most surely to encourage and foster the healthful enterprises which it called into operation?

From the limited experience we have had, it would seem, that, far from acting as a prohibition, the present duty has proved a most salutary incentive and encouragement to all judicious and desirable importations; while, at the same time, it has protected our honest dealers in this branch of trade by shielding them from unprincipled competition, and protected some of the best interests of our horticulture by closing up a broad avenue for the inroads of undesirable and *worthless* products, and leading planters to look for their stock to safe and reliable sources. *Old Castle.*

Geneva, N.Y., Aug. 12, 1868.

[We publish willingly the above communication from our correspondent, and, as it is a subject upon which much may be said on both sides, invite discussion.]

Fruits in Florida. — *Putnam County, Fla.* — Before the war, the lands of this county were not much cultivated. The hummock-lands were not suited to the growth of cotton, and the agricultural interests were confined mainly to stock-raising. Since the war, however, a new system of agriculture has been introduced; and the attention of our people is now directed to the culture of fruits and vegetables, particularly upon the lands bordering on the St. John's River. The other lands remain in about the same condition as before the war. The culture of vegetables for the early Northern markets is a new experiment,

initiated by Northern men, and has so far been attended with very flattering success.

With proper facilities for transportation, the cities of the North might be supplied with early vegetables raised here by open field culture, and which are now obtained only at great expense through the agency of forcing-pits and hot-houses.

But the attention of our people is mainly directed to the culture of fruits, especially those of the orange family, embracing the orange proper, the lemon, lime, and citron ; all of which thrive well in this latitude. As yet there are but few groves that have begun to bear : but the young groves of one and two years' growth promise well ; and the number of trees that have been set out during the past two years, between this place and Jacksonville, will not fall far short of 250,000.

FRUIT-CULTURE IN WESTERN MICHIGAN. — Henry S. Chubb, Corresponding Secretary Lake-Shore and Western Michigan Horticultural Association, writes as follows of the Grand Haven fruit-region : —

" The prospect for peaches among the orchards of this vicinity is excellent. Every living peach-tree has on its limbs a superabundance of rapidly-advancing fruit. The prospect for apples is not as large. Strawberries are very abundant, and are selling at from ten cents to fifteen cents per quart. The late exhibition of strawberries and other small fruit, at Spring Lake, showed that this sandy region is well adapted to the production of these first-fruits of the season. Gooseberries, currants, and raspberries also promise well. The cherry-trees are laden with fruit ; and, notwithstanding the curculio, there will be a fair crop of plums. Grapes, also, are looking well.

" An orchard of twenty acres, peaches and apples, planted about ten years ago, in this city, is for the first time bearing a full crop. It is estimated that there will be about three thousand bushels of peaches this season, besides the apples, pears, and grapes, which occupy more than half the enclosure. The other old orchards of this vicinity, some of which have borne well before, are also heavily laden with peaches.

" The upward tendency of prices in fruit-lands is a sure indication of the increasing interest attached to fruit-growing in this vicinity. Large tracts of land around the city, purchased less than a year ago for from five dollars to eleven dollars per acre, have been selling rapidly in ten-acre lots at from twenty-five dollars to a hundred dollars per acre, for fruit-lands ; while, close to the city, one-quarter-acre lots in almost inaccessible positions on hillsides, held for years at twenty-five dollars a lot, are now selling at seventy-five dollars to a hundred dollars. Some of the ten-acre lots, sold for fruit-lands at a hundred dollars an acre late last fall, are now realizing eight hundred dollars per acre in quarter-acre lots. Fruit-land in eligible locations can still be had for twenty-five dollars per acre in the wild state ; but this price is very likely to double before the close of this season. Improved fruit-lands vary from five hundred dollars to eight hundred dollars per acre when in bearing. These prices, however, do not include the present crop, which promises so well that it will almost purchase the land at these prices."

PURE WINES: WHAT AND WHERE ARE THEY? — It seems your Ohio correspondent cannot rest contented with being refuted at every point in *argument* (as to practical tests, to which I have challenged them so often, my opponents ignore them altogether, as they well know they would tell against them), but is determined to put himself on a level with the man who protested against the use of lightning-rods because it was interfering with the decrees of Providence. He thanks me for making the admission, "that the *best* wine is in the hands of Him who has rain and sunshine at his command, and who alone is the giver of all good and perfect gifts." He also presumes "that wine-makers generally are not so willing to put their trust in Him." I think he is slightly mistaken. I think there are as many, nay, perhaps more, among the wine-makers who put their trust in Him, as among any other profession. "Wine maketh glad the heart of man," especially *good* wine; and the glad and joyous heart is, I take it, more disposed to trust in God, to thank him for all his bounty and goodness, than a melancholy and despondent one. But, while we trust in him, we do so not blindly, but understandingly. I believe that he has not alone given me the juice of the grape, differing as it does in the proportions of its component parts *every* year, but he has also given me *reason*, that most noble of all gifts, which raises man high above other creatures, and makes him the lord of creation. And I further believe that he has given me that reason to *use;* and if, by the use of my reasoning faculties, I find a deficiency in the grape-juice in certain seasons, or in certain varieties of grapes, I should forthwith go to work and remedy these deficiencies to the best of my knowledge by adding those ingredients in which the grape is deficient, provided they form component parts of the grape-juice already. If the grape does not contain sugar enough, I add more; if it contains too much acid, I add sugar and water, both component parts of grape-juice, to tone down and dilute the acid. Where is the harm? I only try to make it as perfect as possible, using the reason God has given me; and Mr. McCullough must allow me to believe that I make a better use of my reason, the most sublime gift of God, in doing so, than he does of his by leaving his grape-juice in its imperfect state.

But further: I contend that the Catawba, and also Ives's Seedling, that pet grape of Mr. McCullough, will, in *no* season, make as good a wine *without* the addition of sugar and water as they will *with* such addition. Even in the very best seasons, they contain too much tannin and acid, and will make a *better* and *more wholesome* wine by being galleyed than without it. If we followed the doctrine so lucidly advocated by Mr. McCullough — "to leave alone," whether good or bad, perfect or imperfect, and that we commit a sin if we do otherwise" — to its utmost consequences, where would it lead? The same doctrine would compel us to eat *raw* potatoes instead of boiling them; for God certainly gave the potato to us in its raw state. We ought to build no mills; for God gave us the *wheat, not* the flour: and we are wickedly interfering with his will if we grind the wheat, and bake bread of it. Nay, the very process of making wine at all is a sin, according to his doctrine: for God gave us the *grape;* why, then, make it into wine? It would be a sin, according to this doctrine, to take medicine in case of sickness; for God sent the disease, and it would be

wicked to interfere with it. Your readers may think these comparisons "far-fetched;" but they are not so in reality. If a wine contains too much acidity and astringency, it is *diseased*, and not as wholesome nor as agreeable as when less so. I only follow the old adage, that "an ounce of preventive is better than a pound of cure." My reason, judging by the tests which I apply, shows me there is too much: it also shows me the means to remedy this; and whether to do so is not only a question of *policy*, but a *duty* I owe to the consumer, knowing as I do that the wine will be more healthy and palatable.

I come now to the last phrase of your correspondent, where he says, with a show of great unction and disinterestedness, "that the art of wine-making, as at present practised, is properly the art of *wine-extension*, and has for its object *money-making;* that great abundance and low prices will alone put a stop to the manipulations of the wine-maker."

Indeed! Does the gentleman, then, mean to assert that *he* grows grapes and makes wine *solely* for philanthropic purposes? Those who know him best would perhaps hardly believe this. I acknowledge freely that I make wine, *not alone* for the pleasure it gives me and others, but also for the purpose of money-making; that I try to make the *best* wine, to get the *best price* for it. And this leads me to galleying, because I *know* (and I dare my opponents to prove the contrary) that thus I make the *best* and most *wholesome* wine. If wine became ever so abundant, and ever so cheap, I would still practise it, because I should be sure to find a market for my *good* wine when others could not sell their indifferent wines. *Quality* will win the day; and, unless my opponents can bring the proofs to which I have so often and so urgently challenged them, they will not convince me that they are right and I am wrong. I assert again, that my wines are just as *pure* as theirs, because I add nothing but what the grape already contains, more *healthy* and more *palatable*, consequently *better*. Let them prove it otherwise *if* they *dare* and *can*. Hollow phrases will not win the day with a thinking public, but arguments, facts, and proofs. Let us have *them*, Mr. McCullough, if your please. *George Husmann.*

HERMANN, MO., July, 1868.

ONE of the kings of the vegetable kingdom, the acknowledged king of monocotyledons, — the great *Dracæna draco*, or Dragon-tree, at Orotava, — is no more. A furious gale last autumn levelled to the ground that immense crown which had grown and flourished for sixty centuries. The storm of July 21, 1819, had deprived the tree of a part of its head; but still it remained a striking object of wonder. In February last, still in excellent health, its immense crown was covered within numerable panicles of scarlet fruits; and the huge trunk, although completely decayed in the interior, sustained vigorously the spreading mass of fleshy branches and sword-like foliage. On the west side, where the ground was sloping, a solid wall had been built under about a third of the trunk: but, on the other side, two or three half-rotten staves propped the more projecting branches; and in this neglected state the hurricane found it, and wrought its destruction. An excellent photograph of the tree as it appeared a few years since is published in Prof. Smyth's "Teneriffe."

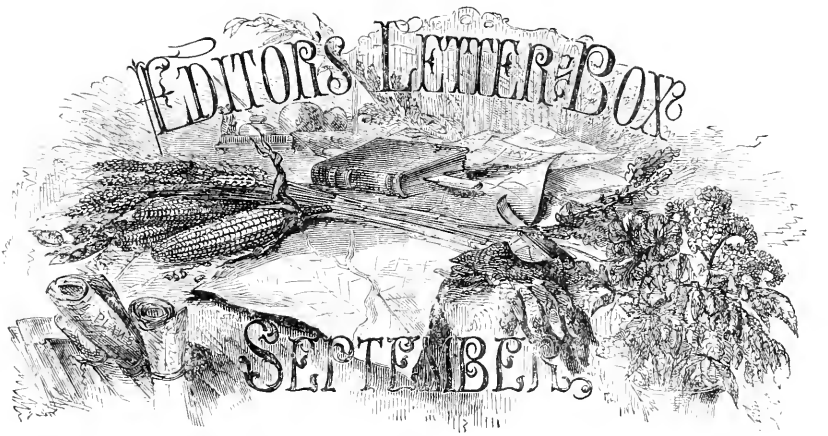
Prices of New Vines. — In looking over the advertisements in our English exchanges, we find that the Madresfield Court Black Muscat Grape is offered for sale at 2*l.* 2*s.* and 3*l.* 3*s.* for single vines, and the Golden Champion Grape at 21*s.*, 42*s.*, and 63*s.* per single vine. Three pounds and three shillings is just now not far from *twenty-two dollars* in American currency, — rather a high price, we should think, to pay for a single vine of any variety, however new and choice.

The above was written before we had looked over the August number of "The Florist and Pomologist," where five different correspondents give instances of the appearance of aerial roots on vines under glass; in some cases, in great abundance. That their appearance is evidence of a weak constitution, as some of these writers allege, we cannot believe; but we consider their production to be rather a token of over-luxuriant growth.

The Annual Exhibition of the Massachusetts Agricultural Societies. — The following gives the place and dates of the exhibitions to be held by the agricultural societies of the State the coming fall: —

Highland, Hampshire County, at Middlefield, Sept. 10 and 11.
Worcester North-west, at Athol, Sept. 15.
Union, Hampden County, at Blandford, Sept. 16 and 17.
Worcester County, at Worcester, Sept. 17 and 18.
Norfolk County, at Dedham, Sept. 17 and 18.
Bristol Central, at Myrick's, Sept. 17 and 18.
Middlesex South, at Framingham, Sept. 22 and 23.
Hoosac Valley, Berkshire County, at Adams, Sept. 22 and 23.
Middlesex North, at Lowell, Sept. 23 and 24.
Worcester West, at Barre, Sept. 24 and 25.
Franklin County, at Greenfield, Sept. 24 and 25.
Plymouth County, at Bridgewater, Sept. 24, 25, and 26.
Essex County, at Newburyport, Sept. 29 and 30.
Worcester North, at Fitchburg, Sept. 29 and 30.
Worcester South-east, at Milford, Sept. 29 and 30.
Hampshire County, at Amherst, Sept. 29 and 30.
Hingham, at Hingham, Sept. 29 and 30.
Nantucket, at Nantucket, Sept. 30 and Oct. 1.
Housatonic, Berkshire Co., at Great Barrington, Sept. 30 and Oct. 1 and 2.
Worcester South, at Sturbridge, Oct. 1.
Hampshire, Franklin, and Hampden, at Northampton, Oct. 1 and 2.
Marshfield, at Marshfield, Oct. 1 and 2.
Middlesex County, at Concord, Oct. 1, 2, and 3.
Hampden County, at Springfield, Oct. 6 and 7.
Berkshire County, at Pittsfield, Oct. 6, 7, and 8.
Bristol County, at Taunton, Oct. 6, 7, and 8.
Hampden East, at Palmer, Oct. 13 and 14.
Barnstable County, at Barnstable, Oct. 13 and 14.
Martha's Vineyard, at West Tisbury, Oct. 20 and 21.

The exhibition of the New-England Agricultural Society takes place at New Haven, Conn., Sept. 1, 2, 3, and 4.



THE Editors of "The American Journal of Horticulture" cordially invite all interested in horticulture and pomology, in its various branches, to send questions upon any subject upon which information may be desired. Our corps of correspondents is very large, and among them may be found those fully competent to reply to any ordinary subject in the practice of horticulture. Any questions which may be more difficult to answer will be duly noticed, and the respective subjects fully investigated. Our aim is to give the most trustworthy information on all subjects which can be of interest to 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.

Editor of "The American Journal of Horticulture."

Dear Sir, — In every horticultural journal, and even in our daily political papers, we find an advertisement of "the celebrated Walter Grape," with the announcement that it combines every desirable quality, and "will restore confidence in grape-growing;" offering it at five dollars per plant.

While *we* have *not* yet lost our confidence in grape-growing, such a grape

would nevertheless seem to us desirable, even at the high price asked. But, first, some competent, reliable horticulturist would have to tell us something about this pretended celebrity. Has its fruit been exhibited, and pronounced worthy? If so, by whom? *Bushberg.*

A. C. M., Vineland, N. J. — It will not pay you to raise mulberries for market, simply because there is no demand for the fruit. The best variety is Downing's Everbearing, the fruit of which is large and fine. The common red, black, and white mulberries are good ornamental trees, but of little value for fruit.

F. C. F., Newburyport. — The following are very fine varieties of tender Indian azaleas: President, Entendard de Flanders, Gleastanesii formosa, Duc de Nassau, Exquisita pallada.

A. B. U., Newton. — *Rhododendron maximum* is our native species, and is hardly worth cultivating. Though indigenous, the flower-buds are often killed in severe winters, and the foliage is always dull and lustreless.

The fine varieties you have seen at the horticultural exhibitions are not to be found in the woods: they are garden hybrids, and must be purchased from nursery-men, or imported from England.

You cannot grow rhododendrons unless you prepare a bed for them. In the January (1868) number of "The Journal of Horticulture," you will find full directions both for soil and culture.

W. C. M., Andover, Me. — Stella, Lady Cullum, Glow, Herald of Spring, Mrs. Pollok, Madam Vaucher, Countess Tyrconnel, and Lord Palmerston are fine zonale geraniums. There are hundreds of other species, — many good, more worthless: it would be very foolish to attempt to make a "complete collection."

I. L. S., Colebrook, N.H. — The fruit sent is the native plum (*Prunus Americana*), a very pretty fruit. It is of little value, however, except for preserving.

G. W. W., Lancaster, Mass. — The flower sent is *Stephanatis floribunda*, a very fine hot-house climber.

IDEM. — The Gerandias are not "susceptible of cultivation." If you transplant them, they linger a year or two and then die.

While there are many of our native plants which thrive and even improve in cultivation, there are others which thus far have resisted all attempts at cultivation. We shall be glad to learn the result of your experiments.

NAMES OF PLANTS. — Young Botanist. — No. 1. *Ilex opaca*, the American holly. No. 2. *Nemopanthes Canadensis* (you should send leaves and not the mere berry; however, in this case it was sufficient). No. 3. *Isanthus cærulens*, false penny-royal. No. 4. *Apids tuberosa*, ground-nut. No. 5. A garden variety of *Potentilla*, probably *P. atrosanguinea*.

FRUIT-GROWER, Berkshire County. — Osbanas Summer is not much of a pear, nor is Ear'y Strawberry a first-class apple ; but both are good for the season at which tney ripen. A tree of each is very well ; but, if you have many, you had better graft them with better varieties.

W. C. H., Elyria, O. — Dr. Kirkland of Cleveland has very fine magnolias, and can tell you all about them. Read his article, on the subject in the Journal.

D. D., a Beginner, West Philadelphia. — *Rhododendron coriaceum* is a good variety ; flowers white, perfectly hardy.

R. Nero is not hardy in New England, but probably is with you : the same may be said of *Lord John Russell*, *John Waterer*, and *Titian*.

PARLOR PLANT, Boston. — The variegated variety of the Calla Lily (*Richardia Æthiopea maculata*) is very pretty, but by no means desirable for window-culture, as there is seldom heat enough to bring out the markings. Keep to the old green-leaved variety, than which there is no better window-plant.

A. B. T., Elgin, Ill. — *Poa trivialis argentia* is, as you suppose, a very beautiful variegated grass. You can obtain it from florists.

Macready's Early is a good greenhouse grape, though its earliness is its chief recommendation. It is white, and somewhat resembles the Sweetwater.

INQUIRY, Nashville, Tenn. — "How can I best grow hardy grapes ?" is a somewhat general inquiry. Read up the many articles on the subject which have appeared in "The Journal of Horticulture" for the last eighteen months ; and then, if you are in doubt on any point, we will reply to any questioning.

A. X. M., Springfield, Mass. — A mass of Golden-rod (*Solidago sys*) : we cannot identify from specimens sent.

OHIO BOTANIST. — No. 1. *Echinacea purpurea*, purple cone-flower. No. 2. Totally undistinguishable. No. 3. *Actinomeris helianthoides*. No. 4 is probably *Cuscuta compacta*.

A. V. B., Rochester, N.Y. — Fruit much decayed. The plum is probably Bradshaw. The pears : No. 1, Dearborn's Seedling ; No. 2, Ott's Seedling ; No. 3, Tyson. The apples : No. 1, Red Astrachan ; No. 2, Benoni.

I. I. M., Brandywine. — The pear you mention as "*Cornelis*" is better known as "*Désirée Cornelis*." It is an excellent variety, and as beautiful as good ; ripens in August and September.

HOP-WORM, Castine, Me. — The white hellebore will kill hop-worms, but is a poison. Syringe before the hops set with whale-oil soap, which will be equally efficacious.

THERE is an apple-tree growing on the grounds of one of my neighbors, one of whose limbs, about two and a half inches in thickness, was accidentally stripped of every particle of bark, for a space of about four inches, several years since; yet this limb has continued to grow ever since, made at least six inches of wood last year, and is now robed in green foliage, though it does not manifest the same amount of vigor as the rest of the tree. I examined the limb myself, and found, on cutting into the peeled part, that the outside wood was dead and dry. Have you ever heard of a similar occurrence? and how do you account for it? *Samuel Rau.*

NORTH LIMA, O.

[We have never noticed such a case. We have frequently known a branch to go through one season as though nothing had happened to it, and then die. If any of our readers can explain this case, let us hear from them. — *Ed.*]

S. C. G., Providence. — What is the best season of the year to transplant a large magnolia-tree, say twelve or fifteen feet high? — Should not advise transplanting such trees; but, if it must be done, do it in winter, with a frozen ball attached.

C. C., Arlington. — Can you give us more information about the Rose Potato? for, if it is as early as its friends claimed, new potatoes of this variety ought to be heard from by this time. — Yes: it has been both *seen* and *heard* from. We saw splendid specimens of this new potato on the tables of the Massachusetts Horticultural Society some two weeks ago, said to have been grown from potatoes planted in the open air the fourteenth day of April. They were of good size, and very handsome, and grown in less than ninety days from time of planting. We think it will not prove a humbug.

CULTIVATOR, New Haven, Conn. — The variety of strawberry called Lennig's White was recommended to me very highly by a friend; and I procured plants at considerable expense, planted, and took the best of care of them; and they turn out to be nearly *red* or *pink* instead of white. Have I got that variety, do you think? — Without doubt you have. When fully ripe, they are of a pinkish color on the exposed side. The shape of the berry is rather flat, and it is of first quality. The vines are neither very strong growers nor great bearers. It is only profitable for home-use.

ALTON, Ill. — We have heard from friends in Boston that Col. Wilder has, after many years' labor, produced a seedling-strawberry better than any thing yet sent out: can you give me any information concerning it? *E. P., Jun.*

Col. Wilder has produced a strawberry which his friends claim to be better than any other yet sent out. It is figured and described in the present number of this Journal. So well satisfied are we of its value, that we have purchased the entire stock from Col. Wilder, and offer it as a gift to subscribers, as will be seen in another column.

A CHAPTER ON GREENHOUSES. — No. II.

In view of the increasing interest and taste in floral study, I give the plan and elevation of another small greenhouse, designed and built by the writer for Josiah Barber, Esq., Auburn, N.Y., at a cost of about fifteen hundred dollars ; and it is working so as to give entire satisfaction.

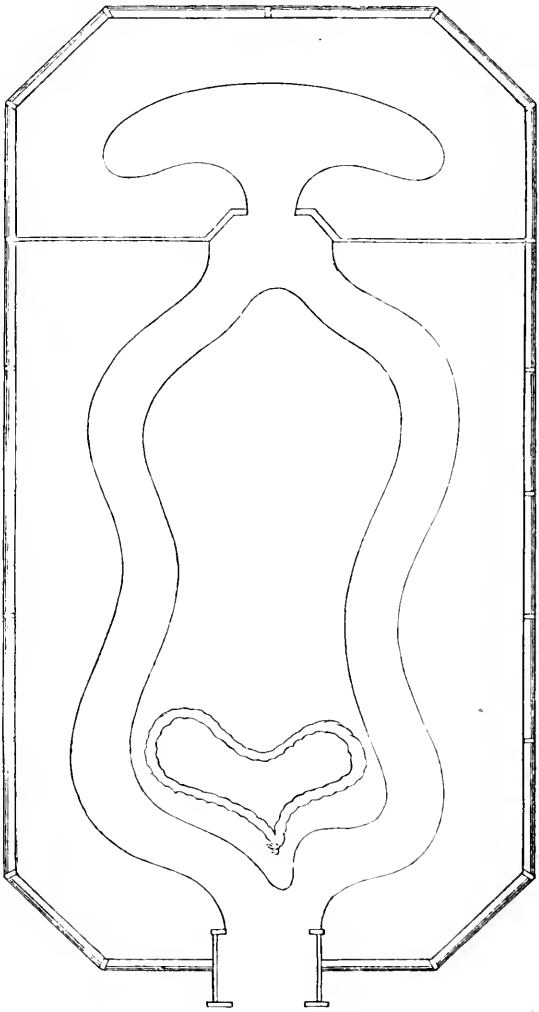
The plan and elevation given in this number are one of a series that is designed more particularly for the amateur who makes greenhouse-flowers the companion of his leisure, and attends mostly to their requirements in person.

In the construction of this building, the ground was excavated about two and a half feet in a similar manner as described in the article on greenhouses in the August number of this magazine. It is of the curvilinear form, which is best adapted to generate and equalize the heat during the day.

The curvilinear form being returned at the ends, with the cupola at top, and having an ornamental entrance, it forms a very pleasing feature as an attachment to a gentleman's ground. This design is not intended to be placed in a rear or back location, but is to be adjacent to the building, tha

it may be easily accessible in all weathers. It has an ornamental sash at the sides, at the bottom, and also at the top under the cupola.

Ventilation is obtained by opening a portion of the bottom sash at the

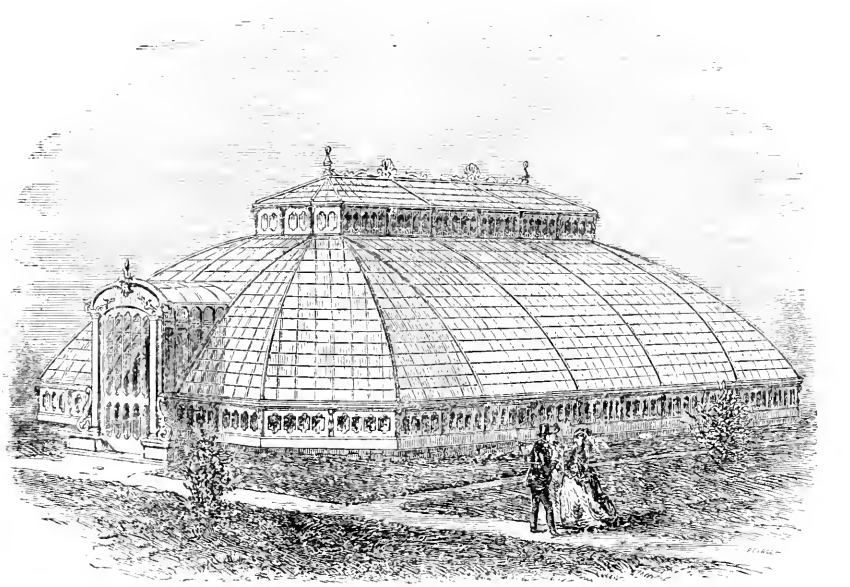


sides, and all the side sash in the cupola. The ventilating sashes are operated by means of a shaft the length of the house, with arms attached by rods to each ventilator, all opening simultaneously: the shaft is operated by means of a spiral screw and gear, which returns the ventilators in the

position left. In connection with the ornamental entrance, it has an enclosure with inside-doors, avoiding all cold draughts of air on entering the house in winter. By reference to the ground-plan accompanying, it will be seen that the walks are serpentine in form, the side part or shelves being made in the same manner as described in our August number.

The centre is laid out as in a rustic grotto, aquarium, and rockery.

At one end, a glass partition is erected across the house on a line with a pair of rafters, at the end, and *not* enclosing any of the cupola, which is



intended for plants that require more heat than the ordinary temperature of the greenhouse. The aquarium is formed on a level below the walks by excavating the soil to give sufficient depth for the water, and building up masonry for the sides to hold the water. The grotto is formed of rustic stone, laid up in as angular and zigzag a manner as possible, or as the size of the stone will admit, and well packed in prepared soil. At the front, it is carried up from six to eight feet high; and the stone is laid in such a manner as to throw a ragged arch over and around the basin below, forming

a large grotto or cavern covering the entire basin. In packing the stone, coarse material is used to fill the crevices, and stop the soil from falling through.

At the top a small basin is formed and cemented, to which a small pipe is conducted, and supplies water to the basin, either by a small jet or fountain or by a direct opening. The overflow of the basin is conducted in such a manner as to trickle down and over the rocks, falling into the large basin below; care being used that the water is not allowed to run behind the rocks so as to saturate the soil there.

The stone used for this purpose is a combination of vegetable matter, fossil shells, and lime, which is found in moist places near the springs in limestone regions. It being of a very porous nature, the rootlets of plants fill all the crevices, and find their way through the stone in all directions, obtaining plenty of nourishment without any additional provision except moisture. The stone itself being a stimulant, lycopodiums, ferns, and other plants, grow and thrive most luxuriantly upon it.

Behind the front of the rockery, the space is filled upon a slope about twenty inches high at its lowest point, then rising at a gradual ascent till it meets the rockery in front, thus dispensing with the shelving, and giving space for the different-sized plants; it being supposed that the amateur has larger and more choice specimens of plants than the professional florist who cultivates for sale.

The space on the front shelf being filled with the small plants, it leaves the centre for the large ones. The rockery also forms places to set plants in pots. If judiciously arranged, no waste room is occupied with the rockery. The whole forms one of those features so satisfactory to all lovers of Nature's works. The furnace of this house was placed in the cellar of the dwelling, and the pipe for heating carried in a covered trench under ground about thirty feet to the greenhouse.

The boiler is of Messrs. Wethered & Cherevoy, of New-York manufacture; and gave abundance of heat during the late severe winter.

By this arrangement of placing the boiler in the cellar, the expense of a fire-pit is avoided. It is very easily attended by some one of its occupants in the absence of the proper person, without the necessity of exposure in severe weather. *F. A. Lord.*

Syracuse, N Y.

PROLONGED RIPENING OF GRAPES.

EXPERIMENTS OF THE KELLEY'S-ISLAND WINE COMPANY.

THE question, when grapes are ripe, is, with most people, less difficult to solve than how to get them ripe. In some favored localities, however, like the islands and points of the south shore of Lake Erie, the absence of autumn frosts allows such a prolonged season of ripening, that the grapes sometimes become *over-ripe* for their best eating condition. It is found that even the Catawbas are of better flavor, more sprightly and agreeable, when *just ripe*, say about the 15th of October, than at a later period, when "dead-ripe," or in the best condition for wine-making.

Among wine-makers, there has been some difference of opinion in regard to the amount of gain, if any, from allowing Catawba grapes to remain on the vines from two to four weeks later than the time of the best market-ripeners of the fruit. With a view to settling this important question, the Kelley's-island Wine Company have made careful and extended experiments the past two seasons, the results of which will be read with interest by grape-growers and wine-makers. They are given as follows, in an essay presented to the Lake-shore Grape-growers' Association, at its meeting in Cleveland the past month, from the pen of George C. Huntington, Esq., of Kelley's Island.

On the 22d of October, 1866, the company commenced buying Catawba grapes for wine, and continued to buy, daily, until the 13th of November, at which date the vintage was completed. The aggregate amount taken in was one hundred and three tons, comprising two hundred and thirty-five different lots, each one of which was sampled by pressing the juice from part of the lot, and testing the gravity of the must by Œschle's scale, — the scale generally in use among wine-makers.

The result showed a gradual gain in the weight of the must until the close of the season. The time covered by the experiments was, however, so short, commencing later and ending earlier than usual, that the gain was not so great as might be expected in ordinary seasons covering double the time.

In 1867, the past season, these experiments were renewed, and continued

through the entire vintage, running from Oct. 15 to Nov. 29,— a period of six weeks; during which time the company bought *three hundred and fifty tons of grapes*, comprising six hundred and ninety-one different lots, every one of which was sampled and tested as in the preceding year. The result was very marked and decisive, as follows: —

Average of whole quantity, 691 lots, 83.35 degrees. Average of 103 lots, from 15th to the 19th October, say entire receipts for five days, 80.06 degrees, or three degrees and twenty-nine hundredths *below* the average of the whole. Average of 81 lots taken after the 15th of November, 83.13 degrees, or four degrees and seventy-eight hundredths *above* the average of the whole; thus showing an improvement in the quality of the must of eight degrees and seven hundredths between that pressed before the 20th of October and that pressed after the 15th of November, or a fraction over ten per cent.

To compensate for the loss in gross weight consequent on leaving the grapes so long on the vines, the price was graduated according to the gravity of the must; making the worth of the grapes picked after the 15th of November ten per cent more than those picked between the 15th and 20th of October. This increase in price was considered as more than equivalent to the loss of avoirdupois. *Secretary L. S. G. G. Association.*

THE ALTHEA.

THIS late-blooming and favorite shrub is often injured by the winter at the North and West. We have sometimes lost them by scores and hundreds in the nursery-rows. There is a way, however, to prevent this injury by winter; and that is, to grow them slowly: let them make but little wood, and ripen that well. We have very successfully accomplished this object by planting them on the lawn in the grass; and, since we have done this, we have never lost a twig by winter, and have never failed to secure a good bloom. They do not, under such circumstances, make great growth; but the wood ripens well, and the plant is hardy.

THE TUBEROSE.

ALTHOUGH always a popular flower, it is only within a few years that the culture of the tuberose has become general; and, even now, cultural difficulties deter many from growing this beautiful and fragrant flower. To show that these difficulties are merely imaginary, and that, with attention to a few details, tuberoses may be grown as easily as early potatoes, and with the same appliances, is the object of the present article.

And, first, let us premise, that, in New England, tuberoses cannot be grown successfully in the open border unless previously started in a frame. The reason is very simple: our season is too short, and frost generally cuts down the flower-stalk just as the buds are expanding: thus, with occasional exceptions in "long seasons" or sheltered localities, we fail to bloom our tuberoses satisfactorily out of doors. In the Middle States, and of course farther south, tuberoses attain their full perfection out of doors, and require only to be planted in rich soil and to be well watered to give ample satisfaction.

The question to be answered — one which has been so frequently asked by numerous correspondents — is, "How can I grow and flower my tuberoses well in New England?"

As we have said, there is no difficulty; but, before proceeding to details, the history of the discovery deserves a passing notice, especially as some misstatements relating thereto have been published.

During the summers of 1859 and 1860, the attention of the writer, then chairman of the Flower Committee of the Massachusetts Horticultural Society, was attracted to very fine spikes of tuberoses exhibited by Mr. E. W. Buswell. For size, beauty, and number of flowers, these specimens surpassed any ever exhibited at the rooms of the society, and elicited universal praise, and inquiries as to the culture which had produced such remarkable results. In compliance with the request of the writer, Mr. Buswell described his mode of culture in an article contributed by him to the Flower Report of the society for 1861.

Afterwards, through the courtesy of Mr. Buswell, the writer was allowed to avail himself of the same description in "Flowers for the Parlor and

Garden," of which the first edition appeared in 1863. The mode of culture thus prescribed has been generally practised since, and has been universally successful.

And, first, as to the bulbs. These are generally imported from Italy, where they are grown in great quantities for export. Of late years, however, many have been grown in New Jersey, which have with us produced very good flowers; although we are free to confess we prefer the imported bulbs, as being better ripened, and more generally healthy.

The bulbs should be procured, either by importation or purchase, early in April. Much depends upon selection; as poor bulbs, with every care, will fail to give good flowers.

Choose such as are very firm, large, not very long at the top, or with an old dried root at the base, with a clean, clear skin, and few offsets. Be careful to look into the top of the bulb (especially with those grown in this country) to see if the shoot is firm, and that there is no rottenness at the heart.

For a succession of bloom from July to November, a hundred bulbs will be sufficient.

These may be procured by wholesale or by importation for from five to eight dollars. It is always better to order a few more than are needed, to make up for weak or diseased bulbs. The first of April is the time to plant bulbs to bloom in July; the next planting should be three weeks later, and the next about the middle of May. Thus, with three plantings, we have had tuberoses all the summer and autumn.

Later plantings will give bloom in winter; but a warm, dry greenhouse is necessary if we would bloom tuberoses in the short days of December, as the buds are very liable to damp off. In preparing the bulbs for planting, clean them thoroughly by rubbing off all small offsets or protuberances, as these only weaken the bulbs, and never bloom. A few days previous to planting, a gentle hot-bed must have been prepared in the usual way. The simplest and cheapest but not the neatest mode is to excavate the ground two feet deep in a dry place where water will not settle. Nail four boards a foot wide and an inch thick together at right angles, of the size of the bed, and place them on it, banking up around them with the earth removed from the hole; fill in eighteen inches of horse-manure and litter; draw on

a glass sash the size of the frame ; and the hot-bed is done. When the heat

is up, prepare to plant the tuberoses by procuring seven-inch pots, good

loam, sand, and peat, well-rotted manure from last year's hot-bed, a lot of dried cow-droppings from the pasture, and a little charcoal-dust: mix the peat, loam, and sand in equal parts, and add a little of the manure and charcoal.

The only drainage the pots require is a crock over the hole in the bottom; and even this is not necessary. Crumble up a lot of the cow-droppings, and fill each pot half full, pressing it gently down. Take care wire-worms, which are often found in old cow-manure, do not get in. Then fill the pot with the prepared soil, shaking it gently to settle it well; and place the bulb in the centre, letting only the crown appear above the soil. Set the pots close together in the hot-bed, and fill in between them with spent tan, covering the pots also about an inch.

Give a good watering with the fine rose of the water-pot full on the sash, and the work is done. They will need no further attention for a week, except perhaps a little air if the weather is sunny and the heat of the hot-bed very fierce.

The sash should be covered with a board or shutter.

In about a week or ten days, the plants will show the green tips of the shoots above the tan; then give more air and water, removing the shutter from the glass. Maintain a moist, warm atmosphere, and the plants will grow rapidly; but give sufficient air to prevent their becoming drawn and spindling.

As the season advances, take off the sash on warm, sunny days, being careful to protect the plants in cold nights; but, by the first of June, the sashes may be left off night and day. The only care required during the summer is to give plenty of water: this requirement attended to, the hotter the situation where they are grown, the better. But, from the time they once begin to grow until the bloom is past, they must never be allowed to flag for want of water.

As the flower-stalks develop, they should be tied to neat stakes; and, as the flowers begin to expand, the pots may be lifted from the frame, and placed in the house or on the piazza or balcony.

The later plantings must be sheltered from frost by removing the pots to the house or greenhouse: they will, however, if protected on frosty nights, bloom out of doors until the middle of October.

After bloom is past, the bulbs are of little value, and may be thrown away. If examined, they will be found to consist of a mass of offsets, each of which will, with care, make a flowering bulb in three years. We have succeeded in thus growing them by keeping them in the cellar during the winter, and planting them in the open border in summer; but in New England, when we consider the cheapness of imported bulbs, the process is too much trouble.

The double variety of the tuberose is most generally grown; but it is by no means as delicate or graceful as the single, while both are equally fragrant.

In the preparation of the hot-bed, if horse-droppings and litter cannot be procured, any mass, such as leaves or stubble, which will heat, will answer the purpose; and a little light soil may supply the place of the tan.

By the preceding mode of culture, we have seen spikes of tuberoses produce from thirty to forty flowers instead of the few weak blossoms developed under ordinary treatment.

The tuberose belongs to the natural order Liliaceæ, and is a native of the East Indies.

The botanical name is *Polianthes tuberosa;* from which the derivation of the popular name is evident.

A singular phenomenon has been observed in this plant, which has been seen "on a sultry evening, after thunder, when the atmosphere was highly charged with electric fluid, to dart sparks of lucid flame in abundance from such of its flowers as were fading."

The spike of flowers from which our illustration is taken was kindly furnished us by Mr. William C. Wilson of Astoria, L.I., a florist who has been most successful in the cultivation of this flower, to which he devotes much attention, and whose plants always give satisfaction.

E. S. R., Jun.

GLEN RIDGE, August, 1868.

NOTES ON SOME SPECIES OF OAK INDIGENOUS TO CALIFORNIA, AND WORTHY OF NOTICE.

1. *Quercus Agrifolia* (Nees). — A dwarf tree in most situations, though sometimes reaching the height of forty or fifty feet, varying greatly in size, form, and dentures of the leaf, as well as in the size and shape of the acorns. It is the *Q. oxyadenia* of Torrey in Sitzgreave's Report, tab. 17, where the singular and peculiarly acute elongated acorn is well represented. Leaves from one to two inches long, *probably evergreen*, pale green and rather dull above, clothed with a ferrugineous pubescence beneath (Torrey, *in Botany of Pacific-railroad Survey*, vol. iv. p. 138). Some valuable information respecting the species may be had by reference to Proceedings of the California Academy of Natural Sciences, vol. iii. p. 229. It occurs almost exclusively in the vicinity of San-Francisco Bay, and on the banks of the stream emptying into it, extending also southward, approaching the coast more nearly as we reach Monterey (Bolander). The *Q. Wislizeni* (*Engelmann*), which was thought to be only a form of this, is proved to be distinct, and differing as they do materially in their distribution.

2. *Q. crassipocula* (Torrey). — Another species dependent on situation for size, and varying from a mere bush with entire leaves to trees forty feet high. Cañon Pass, Sierra Nevada.

3. *Q. chrysolepis* (Liebman). — The drooping live-oak is the most rare of all the Californian species, — a tree thirty or forty feet high, with mostly long, slender, drooping branches, evergreen (Bolander op. cit.).

4. *Q. densiflora* (Hooker and Arnott). — The chestnut-oak of California is associated with the red-wood trees, attaining in dense woods the proportions of a rather large tree; the timber of no value, and called by the logmen the water-oak (Bolander).

5. *Q. Douglassii* (Hooker). — The pale oak has short, rigid, and erect branchlets; the acorns abundantly borne on the ends of the branchlets, and resting, as it were, on the dark-green leaves (Bolander).

6. *Q. echinacea* (Torrey "ined."). — This is pronounced to be a fine species, and first discovered by Mr. Brackenridge on the upper waters of Sacramento Creek, and subsequently by several others in various parts of

the State. The acorns are borne in clusters of two or three; the nut short and thick; and the cup, which is an inch in diameter, is thickly covered with rigid subulate or thread-like scales, which become reflexed or recurved (*Botany of Pacific-railroad Survey*, l. c.).

7. *Q. Emoryi* (Torrey). — A species occurring in New Mexico, and figured and described in Emory's Report. A species of the American mistletoe; is parasitical on its branches.

8. *Q. Garryana* (Hooker). — The white oak of California, first noticed by Menzies in the North-west Territory, and afterwards detected by him in California. A fine tree, forty to eighty feet high. Nuttall, however, saw some in Oregon which he describes as from ninety to a hundred feet in height; though Dr. Bigelow saw it attaining the height only of thirty feet (*Flora Bor. Am.*, vol. ii. p. 159; *Pacific R. R. Rep.*, p. 138).

9. *Q. Hindsii* (Beuth). — The long acorn-oak. A tall tree, with a trunk three feet in diameter, common in the Valley of the Sacramento. It is noted for the great length of its acorns, even two inches in length, and either tapering to a point, or obtuse at the summit; the cup tuberculate, with thickened scales (*Pacific R. R. Rep.*, l. c.).

10. *Q. lobata* (Nees). — This species, according to Bolander, is the most common and largest oak in all the valleys of the interior of California; a mighty oak, with peculiar gracefully-drooping branches, and noted for its long acorns. One of the white oaks of California (Bolander, l. c.).

11. *Q. Sonomensis* (Beuth). — The Californian black oak; a middle-sized tree, with the branches mostly numerous and erect. Its leaves fall off early, and become buff-colored. The acorns of this and of the preceding species are both used by the Indians as food (Bolander l. c.).

12. *Q. tinctoria*, var. *Californica* (Bartr. and Torrey). — A common tree; and though closely allied to the typical form of the Eastern States, yet probably a distinct species. It occurs throughout the Valley of the Sacramento as far south as San Diego (Torrey, *Pac. R. R. Survey*, p. 138).

The importance of the oaks in planting for effect and ornamentation naturally directs attention to species, which, though of different climatic peculiarities, are worthy experiment in areas where these several species of the Pacific coast might find soil and climate appropriate to their cultiva-

tion. Rich as is North America in its forest-trees, every year seems to add some new species to its flora. The oaks and pines, with their allies, are as diversified in habits, size, and form, in beauty of foliage or singularity of fruit, as the wide-apart and interesting regions in which they are found indigenous. *John L. Russell.*

NEW DWARF PERPETUAL FLOWERING-CARNATIONS.

THE culture of the carnation, as well as that of the auricula, the polyanthus, the tulip, and other flowers known as "florist-flowers," has, to a great degree, gone out of fashion. Lately, there are signs that the fancy for this class of plants is reviving. We are glad of it. They are among the most beautiful and interesting of flowers, and are destined, we think, at no distant day, to have as many votaries, and to awaken as much enthusiasm, as in the early part of this century.

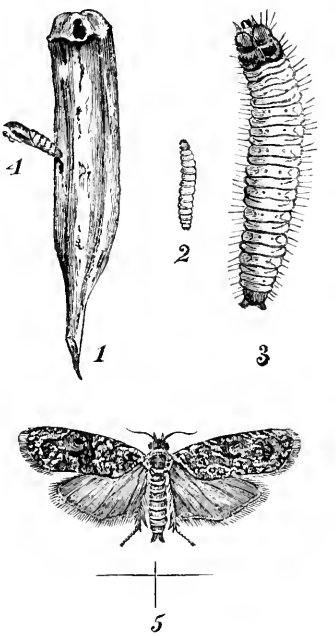
Carnations have their objectionable qualities. They are very troublesome, from the fact that they are too tall and too weak to stand alone, and require to be tied to sticks, — a tedious process when there are many of them to be looked after. A French cultivator, M. Alégatière, has undertaken to remedy this defect. By means of artificial hybridization, practised for a series of years, he has succeeded in producing a race of carnations which are perpetual bloomers, and of which the flower-stems are scarcely more than a foot high. They are so strong, that, when pressed down, they are said to start up again like a spring. The flowers are described as of a perfect shape, very fragrant, rich in color, and produced in great abundance. The foliage is of a bright and lively green. They *come true from seed.* In short, the originator claims that he has created, not a new variety, but a new species. Darwin, no doubt, would agree with him. Whatever theory on this point may be adopted, it seems reasonably certain that he has achieved a horticultural triumph of the first order; and that we may speedily look for the public advent of a new race of pinks with the merits of the best old ones, and without their faults.

F. Parkman.

INJURIOUS INSECTS.

It must be apparent to every observing horticulturist that insects which are injurious are rapidly increasing.

There is scarcely a flower, fruit, or seed, which has not one or more insect enemies; and their depredations are becoming so numerous, that it is to be feared that many species of plants will have to be abandoned unless



some efficient remedy is soon discovered. Our fruits have suffered most; but flowering plants and ornamental trees are injured more or less every year. To know how to successfully combat these enemies of our gardens requires a knowledge of their habits; and to obtain this information much time and patient investigation is needed (more, I fear, than every horticulturist can command): therefore we have to look to the professional ento-

Note. — *Explanation of Figures.* — Fig. 1. Tigridia-seed, natural size as it appears when attacked Fig 2. Worm, natural size. Fig. 3. Same, magnified. Fig. 4. Chrysalis, after the moth has escaped Fig. 5. Female moth, the hair-lines showing natural size

mologist for all the minute particulars regarding the characteristics of each family genus or species.

Last season, I noticed that nearly every seed-pod on my tigridias was punctured by some insect of whose habits I knew nothing; but, to obtain the desired information, I sent a quantity of the larvæ, taken from the seed-pods in the fall, to C. V. Riley, State Entomologist of Missouri, whose reply I append to this note, believing that it contains information of much importance to every grower of bulbous plants. *A. S. Fuller.*

RIDGEWOOD, N. J.

The tigridia-seed larvæ which you sent me last December have proved, as I suspected they might, to be an entirely new species. Ever since the 10th of March, I have been breeding from them a pretty little moth belonging to the genus *Penthina;* and enclose, in accordance with your request, a brief description of the worm, its chrysalis, and moth, together with some drawings, which will be of more value to you. For the fact that the species has never been described I do not trust to my own opinion, but have the assurance of Dr. A. S. Packard, jun., of "The American Naturalist," who is one of our best micro-lepidopterists.

The genus *Penthina* belongs to a sub-family of the TORTRICIDÆ (a large group, whose larvæ live for the most part in seeds, buds, or between leaves, which they fasten with their silken threads): and it is characterized by the antennæ of the moths being simple; their upper wings twice as long as broad, and arching in front from the shoulder; and by a tufted thorax. They rest with the wings in the shape of a roof, but rounded above. and somewhat approaching each other beyond the body. The sexes differ but slightly.

It is quite probable that this species is not confined to the tigridia, but will be found to attack the whole Lily family, or at least the *Iridaceæ;* and I name it, therefore, in honor of yourself, —

PENTHINA FULLEREA. — *Larva.* — Average length exactly half an inch; general color of a uniform dirty carneous, frequently inclining to yellow and to green; two wrinkles on each segment; head jet-black, without a spot or shade; cervical shield also black, and occupying the whole surface of segment one; piliferous spots in the normal position, but scarcely observable, even with a lens, other than by the hairs proceeding from them; feet, legs, and venter of the same color as upper surface.

Chrysalis. — Average length, 0.25 ; of the usual form, with a distinct row of teeth above, on the anterior portion of each segment, and a few minute bristles at the extremity and along the sides. It is formed within a silken cocoon, constructed in one of the three tubes of the seed, and forces itself half way out at one side when the moth is about to emerge.

Perfect Insect. — The figures I have made are very accurate, and drawn from several fresh specimens : and, as the markings of the moth are somewhat intricate, I will not bore you with a tedious scientific description, but simply state that the ground-color of the upper wings is silver-gray, with a slight admixture of brown ; that the still lighter portions, as shown in the figure, are between a cream and a flesh color ; that the dark portions are of a rich Vandyke brown ; and that in particular lights there is a pale, steel-blue or purple hue on certain portions of the wing, and more especially at the lower edge near the thorax, and on the upper half, immediately inside of the dark shade which crosses the middle of the wing. Fringes dark brown, with a deep-blue gloss ; under-wings light brown, becoming deeper around the outside margins ; fringes lighter than the wings ; under-surface of all the wings of a uniform leaden-brown, — that of the upper somewhat darkest, and showing costal marks. When well magnified, the under-wings and under-surfaces appear minutely and beautifully lined transversely. Antennæ, legs, and body of a silver-brown, with a metallic lustre, especially underneath ; head and thorax variegated like the upper wings, with the eyes, palpi, and tuft dark brown, the scapulæ being lighter.

LIQUID MANURE.

We think an immense saving could be made if owners of land, whether owners of gardens merely or of more extensive tracts, would only save all the liquid manure about the house and barn. Cart up some muck or loam, and prepare a basin, and let all the slops from the house be put into it. The ashes may be thrown on the same heap ; and, after a while, the whole should be mixed together. Those who keep cattle should so arrange it, that, by the use of muck, all the liquid manure can be absorbed. We should all be surprised to see what results would flow from such careful management of the resources within our reach.

PRUNING FRUIT-TREES.

This is a subject about which there is much controversy; and thousands of valuable trees, in nearly every part of the United States, have been ruined by applying the knife improperly. Persons in the rural districts have been led to believe in spring-pruning. Itinerant charlatans have, from time to time, traversed the country at that season, lopping off huge branches without number, leaving the crippled trunks to eke out a miserable existence, and finally to dwindle and perish, to the great satisfaction of those who loathe the sight of a mutilated orchard. Soon after the branches are thus severed, what are known as "weather-cracks" appear in the newly-cut wood; and water penetrates as far as the original nodes from which the lost branches sprung, where rotten nuclei are soon formed near the heart of the tree, and not unfrequently extend their deadly effects several feet above the wounded parts. Innumerable adventitious shoots, better known as "water-sprouts," are produced near the decaying wood, that the superabundant sap, otherwise provided for the lost branches, may circulate. These "water-sprouts" bear no fruit. In time, they rob the old fruit-bearing limbs of nourishment; and the worthless, crippled, unsightly object is cut down as a cumberer of the ground.

Now, there are but two ways and times for pruning fruit-trees. Vine-pruning is a very different thing. If I wish to cut back the shoots of young trees to make the tops bushy, or rather low and dense, or any other shape that may be desired, the cutting is done just before, or at the time, the buds are bursting in spring. All heading-in to form properly-shaped tops on young trees should be done about the first of April, when the ascending sap will find vent by pushing a number of eyes which otherwise might remain dormant. But this will not always apply when the knife is used on any other than last year's growth. The buds on healthy shoots two years old will generally push near the top where a part has been cut away, but cannot be relied on when nearly all are required to fill open spaces and form a dense symmetrical top.

The cutting of large branches from bearing trees should be avoided as much as possible. Nature generally sends the shoots where they are

needed, and seldom where they will do injury. *A branch should never be lopped because it hangs too low;* all such being of great value to trees in open grounds, for the purpose of shading the trunk, where the unbroken rays of a July sun will do more mischief than hard winters, borers, and all other deleterious causes, combined. And when a branch appears to crowd the top, if it is cut away, an unsightly opening will be obvious at once. The saw and chisel are used by far too much. A common clasp-knife is all that is necessary for ordinary pruning. But there are cases where the saw may be used to advantage, — when two limbs interfere so that both will be injured if one is not cut away, and when a branch is broken by high winds or otherwise. All such pruning should be done in the month of July, when more sap is in the top of the trees than at any other period.

The descending sap from August till November forms the annular ring of new wood, and in it permanent ducts for the passage of ascending sap the succeeding spring. If we cut away one-half the top of any tree while the sap is down, double the usual amount will find its way into the remaining branches; thus crowding the ducts so as to force water-sprouts, much in the nature of leaks sprung in the embankment of an overcharged reservoir. But this may be avoided by cutting the branches while the sap is up. Sever a limb in July, and part of the descending sap will moisten the wound, even keeping it as green wood, almost to the very edge of the cut; while the remaining portion will form a *callus* around the injured part, with proper ducts, through which the sap will ascend next spring as regularly and healthfully as though no branch had ever been there. The cut will soon heal over, and the tree remain as sound as if no amputation had taken place. *J. Milleson.*

Shelbyville, Ind.

JUCUNDA STRAWBERRIES.

We send strawberries five hundred miles to market. Have sent Jucunda to New York, and it arrived in good condition, and sold for more money per quart than the Wilson's Albany, grown near the city. — *Mr. Hoag, Lockport, N. Y.*

THE ORCHID-HOUSE.

THE construction of the house is a most important part of orchid-culture. The first conditions to be secured for the health and growth of the plants are a moist and warm atmosphere; and the house must be built with a special view to this end.

We often see collections of orchids in greenhouses where all the requisites for their growth are wanting, crowded with greenhouse-plants, drenched at one time with water, and then again allowed to dry up, subjected to

cold draughts of air, and exposed to a burning sun. Is it a wonder they never thrive? that year by year they dwindle and die, till at last only a few of the hardiest species, such as Oncidia, Stanhopeas, and Peresteria, survive, and these weak and sickly? and, if they bloom at all, they throw up such weak spikes of bloom, that the owner, in despair, throws away the whole collection.

The failure is not surprising. Orchids cannot be grown successfully with other plants; though, in an orchid-house, many of the beautiful variegated-leaved plants, which, like orchids, require a moist heat, may be grown with perfect success.

Orchids must, then, have a house to themselves. This need not, however,

be a separate building. A portion of the greenhouse divided off by a glass partition, in which the requisite heat can be obtained, will answer perfectly well for most orchids; and the plants may be rested in the greenhouse.

To grow orchids with perfect success, and where there is a large collection, we need three separate houses or apartments, — the stove, or East-Indian house, the intermediate or Mexican house, and the resting-house.

The best aspect for an orchid-house is east and west; that is, if span-roofed, the house should run north and south: if the house is "lean-to," let it face the south-east.

There has been much difference of opinion in regard to the adaptation of lean-to houses to orchids. In England and the Continent, all the most successful growers use span-roofed houses; and we have no hesitation in pronouncing them better adapted to the growth of the plants. The one argument in favor of lean-to houses which is of any weight is that they are more easily kept at the necessary temperature, which, in our cold winters, it is difficult to preserve. If, however, we make our houses low (and an orchid-house should be only about thirteen feet high), a span-roofed house is easily heated.

A small house may be from thirty to fifty feet in length by twelve feet wide; or, if span-roofed, double this width. It should be built like a pit, the floor of the house being about three feet below the level of the ground. The walls should be brick or stone, as high as the ground surface. On this a heavy frame should be laid, and then sashes with heavy uprights reach to the frame supporting the roof. The whole height from the ground inside to the slope of the roof should be about six feet. The whole of the front wall is often built of brick, which possesses many advantages, the only objection being the obstruction of light.

The pitch of the roof should be thirty to thirty-three degrees. The glazing should be close: the larger the plates, the better; but they should not be above a foot in width. The northerly end should always be of brick-work, as being warmer, and affording a convenient place for the growth of climbing-ferns and small orchids. The southerly end should be glazed with smaller glass than the roof, say twelve to fifteen inches long by eleven or twelve wide. In a lean-to house, the back wall should be of brick, as being more durable; but wood may be used.

A table about a foot wide should extend along the front of the house. The pathway should be two or three feet wide along the side of the house of a lean-to: if a span-roof, it may be through the centre, with broad tables on each side; or, as we consider the best and most effective arrangement, a wide table may run all around the house, and the walk may be all round a wide central table. The side-tables may be about three feet high: the centre should be a little lower if intended for large plants. Arrangements should be made for a large tank in the centre of the central table.

Ventilation should be afforded by openings in the front wall and sliding-sashes in the roof; but care should always be taken to allow the air to pass over a heated surface before coming in contact with the plants. If we do not wish to paint or wash the glass, it will be necessary to provide a canvas awning, so arranged as to be spread and removed at pleasure. It is also well in our more Northern States to have wooden shutters fitted to the outside of the roof for the protection of the plants in cold winter-nights.

A pottery-room should be provided, connected with the house, and heated, in order that the plants, when removed to it, may not be chilled.

A larger house may be built on the same plan, only taking care not to increase the height: orchids never do well in a high house. The interior arrangements may vary considerably, according to the taste or fancy of the owner.

The material used for greenhouses is usually wood; but, where it can conveniently be obtained, iron is far better. A house made of brick, iron, and glass, would last an indefinite time, and, beyond an occasional coat of paint and the replacing any broken glass, would need no repairs. The constant moisture of an orchid-house rots wood-work very quickly, and a wooden house always affords many safe lurking-places for noisome insects. The only advantage of a wooden house is that the moisture condenses less rapidly.

Where the rafters are all made of iron, the condensation is very great, and the continual dropping may injure the plants; but by making a small groove in each sash-bar to allow the water to run down to the bottom of the bar, where a small zinc gutter may be provided to receive it, this objection is removed.

Even in a wooden house, it is a good plan to channel the sash-bars, and provide in the same manner for carrying off the water.

Unless we design to have a number of houses for orchid-culture, it is best to divide the house in the middle by a glass partition: this will give us two houses,—one for orchids which come from the warmer parts of India, near the heating apparatus; and the other for those which come from cooler climates, and which require less heat and moisture.

Interior Arrangement. — The tables around the sides of the house are for the smaller pots. A slight trellis-work fastened to any back or side wall is useful for such plants as vanilla and renanthera: it should be set out a few inches from the wall, in order that the roots of the plants may not be chilled by a cold surface.

In the arrangement of plants, care should be taken to place the largest and tallest growers in the centre of the table, and to grade down the plants to the sides, as thus a symmetrical effect is produced. Some growers prefer stages or shelves; but the arrangement on tables seems preferable to all others.

The tables are often made hollow, and filled in with moss or sand, through which a heating-pipe passes, thus giving a gentle bottom-heat: the plants are either placed on the moss, or the pots plunged in it. Some plants grow most luxuriantly under this treatment. Of course, it is necessary to keep the moss constantly wet.

The tables should be of brick or slate laid in cement.

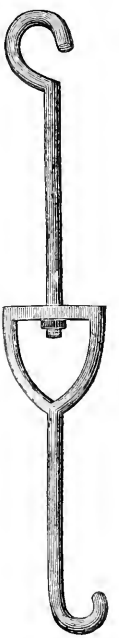
Cisterns for water should be provided, supplied with rain-water from the roof of the house: these should be warmed by the heating-pipes being carried under them. A good place for these cisterns is all along the sides of the house; then the pipes can run under them the whole length, and a shelf for plants may be placed on top of them. The best material for table is slate: the best for floors is soft flagging which will hold moisture.

All tables should be so arranged as to hold water. The pots should be placed on pebbles in the water during summer; but, in winter, the shelves should be dry.

Plants in baskets or hanging pots should be suspended to the rafters over the walks; as, thus, no drip comes upon plants below.

The accompanying plate represents a very neat and convenient contrivance for suspending these plants. It should be made of iron, galvanized; and is so arranged, that the plant may be turned round without removing it from the rafter.

A very pretty effect may be produced in an orchid-house by entirely dispensing with both shelves, staging, and tables, and fixing in the ground large branching trunks of trees with the bark on. The orchids are fastened to these, and nestle in the forks. Climbing-ferns and tropical plants are



twined round the trunk, and terrestrial plants may be made to grow in the hollows of the trunk; and thus the interior of the house may resemble a tropical forest. The plants succeed perfectly under this treatment, and the effect produced is charming.

This mode of culture, however, requires great care, as the plants are thus more exposed to the attacks of insects, and, being fixed in position, cannot at the resting season be removed to the cooler house. However the plants are arranged, they should not be allowed to touch or rub each other: there is nothing gained by crowding; but both the health of the

plant and the general effect may be destroyed. It is better to grow a dozen plants well than a hundred poorly; and free light and air are essential to the health of orchids.

Heating. — There is nothing better for heating an orchid-house than hot water. The heat thus obtained is more equal, moister, and less exposes the plants to a change of temperature than either steam or hot air. In these two latter methods, the pipes lose their heat as soon as the fire goes out; while, in the former, the heat is retained for several hours. A proper regulation of the heat is one of the requisites for the successful cultivation of orchids.

During the winter season, the greater proportion of the plants are at rest: it is not, therefore, necessary to maintain a high temperature.

When the sun is in position to warm the houses, the heat should be slackened in the pipes, but should be again turned on just before the sun leaves the houses.

It is well to begin to put fires in the orchid-houses about the middle of September, for then the nights are cold; but at this time, also, the supply of moisture should be reduced.

During the winter months, until the end of February, the heat should be rather dry than moist, and never excessive.

It is advantageous to have open water pipes or basins through which hot-water pipes pass, which give out vapor which is beneficial to the plants. The water in these pipes should be frequently renewed, as thus a pure, clean atmospheric moisture is preserved.

In heating with hot water, three rows of four-inch pipe should run round the house, and two round each centre-table inside of the brick-work on which the table rests, or the pipes may run through water-cisterns which will always give a moist heat; and in cold weather, or the resting season, the water can be drawn from the tanks, and a dry heat obtained. Small ventilators, made to open and shut, should be inserted into the brick-work of the tables on each side, so as to allow heat and moisture to pass into the house when required. There should be means provided for going under all the tables by means of little doors, in order to examine the pipes if at any time they are out of order.

A brick flue may be used for heating with pans placed on the top for the evaporation of water; but care must be taken to prevent any escape of smoke or gas into the house.

Ventilation and Temperature. — A careful system of ventilation is of great importance. Let us bestow every care upon orchids, all will be in vain if we allow cold air to pass among them: the plants will not thrive. Ventilators should, therefore, be provided near the ground in the front wall, close to the heating-pipes, so that the air may be warmed as it enters the house: they may also be constructed in the brick-work at the north and south ends. These ventilating spaces may be closed by wooden shutters or by sliding slates: they should be two feet long and one foot wide, and should be left every twenty feet. If the house is span-roofed, they should be on each side.

If the top-lights are made to slide, any ventilation desired may be easily afforded; but, if not, ventilators should be placed in the ends of the house, near the roof: but, even with sliding sashes, the ventilators on the front must not be dispensed with.

The temperature should be about fifty degrees in the coldest weather: if allowed to fall much lower, the plants will be chilled. During the season of rest, — which with most orchids is from November to February, — the temperature should not be much higher. This season of rest is essential to the production of a strong growth and fine flower.

If the same heat is always maintained, and constant moisture afforded, the plants will continue growing, or will produce weak second-growths, and either fail to flower, or else produce weak and few blossoms.

A most ready way to secure this rest is to remove the East-Indian orchids to the cooler or Mexican house during their resting season, — that is, after they have perfected their growth, — and again to remove the Mexican orchids to the greenhouse during their resting season.

There are some East-Indian orchids, such as *Phalænopsis* and *Æredis*, which grow perpetually: these should always be kept in the hottest house; but the heat should be somewhat reduced, lest the plants be forced into too active growth or bloom, as these plants often kill themselves by over-flowering.

The temperature thus must vary greatly at the different seasons of the year, and at different times in the course of the twenty-four hours.

The following table may be useful : —

INDIAN HOUSE, OR STOVE.	FAHRENHEIT.			
	Day with sun.	Day without sun.	Night.	Morning.
Spring	75.	70.	60.	55.
Summer	85. to 90.	70.	65.	60.
Autumn	70.	65.	60.	55.
Winter	65.	60.	55.	50.
MEXICAN, OR COOL HOUSE.				
Spring	70.	65.	60	55.
Summer	75.	65.	60.	55.
Autumn	60.	55.	50.	50.
Winter	55.	50.	50.	45.

Clarence E. Herbert.

NEW SYSTEM OF ROSE-CULTURE.

At page 149 of September number, mention is made of a mode of growing roses, which is described as new, at least to this country. I can state from experience that this plan is an admirable one, especially in climates where the best flowering-roses require protection during winter. But the *system* is not new by any means. I have frequently recommended this mode; and in my "Calendar of Operations," published in the June number of "The Horticulturist" for 1858, I refer to it as follows : —

"*Roses.* — To form well-furnished and finished beds of roses, procure such kinds as Souvenir d'Anseleme, Sombrieule, Amie Vibert, Glorie de Rosamene, and Fellenberg, and plant them so that the stems may be readily pegged down to the surface of the ground. Roses, as procured from greenhouses, are generally tall, slender, and destitute of low side-branches, and, when planted out, require an amount of support from stakes that greatly mars the beauty of the plants, and does not harmonize well

with the general neatness of the flower-garden. To remedy this defect, let the plants be laid down horizontally, and the stems separated and pegged close down: the whole plant will then send up a new crop of shoots and flowers, and preserve such a uniformity of growth as will render it a rival, as a bedding-plant, to the verbena. When treated in this way, flowers are produced in masses; although, to procure the greatest uniformity, kinds of similar habit should be selected. We cannot imagine any feature that would be more interesting than a small geometrical arrangement of beds, each planted with a distinct variety of rose, and managed as above. Roses laid so near the ground will be much less likely to be destroyed by severe winters; and, if necessary, they can be covered with great facility."

WASHINGTON, D.C. *W. Saunders.*

[The pegging-down of roses, as recommended by Mr. Saunders, has been in occasional practice for some time, and has been advocated by Rivers and other writers. The novel feature in the plan described in the September number consists in the systematic renewal of the old wood every season; all the wood that has bloomed being cut away, and the new shoots alone used for the next season's blooming. It is said, and probably with truth, that this greatly increases the size and beauty of the flowers. — *F. P.*]

THE WACHUSET BLACKBERRY.

THE new thornless blackberry, of which we give an illustration in this number of the Journal, is, we believe, the only really thornless blackberry that has ever been discovered in this part of the country. It was discovered growing wild on Monadnock Mountain about five years since: and Mr. Fletcher of Groton Junction, Mass., who owns nearly the entire stock of the plant, assures us that this variety does equally well on a light and a heavy soil; and that, where other kinds have failed the present season, this has borne a heavy crop.

Those of our readers who have cultivated the thorny kinds will at once admit that any variety that bears good crops of fine berries, does well in almost any soil, and is, in addition, free from thorns, cannot fail to be a great acquisition.


Rudd. Del

AD INTERIM REPORT

Of the Fruit Committee of the Massachusetts Horticultural Society, 1868.

Seedling Strawberry, No. 13, of Hon. M. P. Wilder. — By invitation from Col. Wilder, your Committee visited his estate on the 7th of July for the purpose of inspecting his beds of seedling strawberries, especially the one which he has designated as No. 13. Without dwelling upon the many objects of interest and the bountiful hospitality of our host, we confine our report to the strawberries in question. We found the seedlings growing in several locations in beds from one to three years old, and in proximity to standard varieties, such as the Hovey, the La Constante, and the Triomphe de Gand. All the beds seemed to be under good but not extraordinary culture; the older kinds yielding only an average crop. Seedling No. 60 compared very favorably with the Hovey; but it does not at present sufficiently indicate superiority to older kinds to require a more extended description than has been given in previous reports. It should here be stated, that, during the absence of Col. Wilder in Europe, by some misunderstanding the Nos. 13 and 60 were interchanged in our report of last season. The description of No. 13, as given in the report, belongs to No. 60,* and *vice versâ*. The varieties are quite distinct, and are entirely separate in the grounds of Col. Wilder.

No. 13 was the chief object of interest, and fully maintained the reputation of two previous years. As there are many indications that La Constante is one of its parents (though there are also strong points of difference), we may with propriety compare it with this variety. In health and strength of foliage, the beds of No. 13 were in marked contrast. In quantity of fruit, there was the same contrast, the amount on La Constante being small, as is usual; while there was a great profusion on all the beds of No. 13 growing side by side. The foliage seemed to be just sufficient

* The report for 1867 should read as follows: "The favorable opinion entertained last year of the seedling strawberry of Hon. M. P. Wilder — a cross between La Constante and Hovey's Seedling, and now designated as No. 13 — is confirmed this season. The fruit is of the largest size, o good flavor, in appearance a medium between its parents, not so polished or glazed, and with seeds more embedded than in La Constante. An examination of the bed gave indications of vigor and decided productiveness."

to secure the uniform maturity of all the berries. A marked peculiarity in the quality of No. 13 is a distinct Hautbois flavor, not too strong to be objectionable to any taste, and which will be most agreeable to those who are fond of this flavor. As there is not a trace of this flavor either in La Constante, Hovey, Triomphe, and the varieties which have surrounded it and from which it sprang, it is singular that this aroma, so noticeable both in taste and fragrance, should be found in the offspring. This seedling has only been fruited on the grounds of the originator, and it is not safe to give a positive opinion as to its adaptedness to the various soils and climates of our country. And yet we may say that we have seen it for three successive years in various localities under Col. Wilder, and cannot doubt that it is hardy, vigorous, highly productive; of largest size, superior in quality, beautiful in appearance, firm enough for market-purposes; and, should it sustain the character with other cultivators which is indicated on the estate of the originator, it will prove to be the most valuable of the many contributions which Mr. Wilder has made to horticulture, and will worthily bear his name. With his permission, we are authorized to, and do hereby, name his strawberry seedling, No. 13, "The President Wilder."

FLORIST PYRETHRUMS.

THIS is an entirely new family of florist-flowers. *Pyrethrum roseum*, from which it originates, looks very much like the common "white weed," the pest of our meadows; excepting that the outer petals are usually pink or rose-color, instead of white. Sometimes, however, they are white; and then they are scarcely to be distinguished from the familiar weed. The foliage alone is different; being finely cut, like the camomile.

Here, one would think, was not a very promising subject for the florist to develop into a degree of beauty that would give it rank among the choice ornaments of the garden. This, however, has been done; and the hardy pyrethrums — for they are among the hardiest of flowers — are in a fair way to rival the asters and chrysanthemums, with the advantage of

blooming in June instead of autumn, and of requiring the least possible care and skill in their culture. They take care of themselves as nearly as any garden-plant can be said to do so.

The points were, to improve the color, and to make the flower double. And this has been done; not, as is popularly supposed in such cases, by any mysterious and artificial process, but merely by the careful selection of seedlings from generation to generation, keeping only the best, and rejecting all others. Thus the natural dull rose-color of the original species has been changed into vivid red, and the single flower has been gradually transformed by successive steps into one as double as the best French asters. The shades of color in these improved varieties range from pure white to crimson, including every shade of rose and flesh color. More improvements are to be looked for in future, as the pyrethrum, regarded as a florist-flower, is still in its infancy.

It grows to a height of between two and three feet; and sometimes, though not always, requires the support of a stick. But there is a good prospect that a race of dwarf pyrethrums not more than a foot high can be produced. Out of about a thousand seedlings, I found this season eight or ten dwarf plants, some of which formed dense tufts of foliage close to the ground, with the flowers resting upon it not more than six inches above the crown of the root. I have no doubt that the plants showing this tendency can be so developed and improved as to form a very pretty and desirable section of the pyrethrum family. *F. Parkman.*

HARDINESS OF THE CLARKE RASPBERRY.

An inquiry of a correspondent in the June number of the Journal, and your request for information from different sections, induce me to say this variety has stood the past three winters here, fully exposed, without injury. The lowest temperature during that time was twenty-five degrees below zero, Farenheit. *Geo. W. Campbell.*

Delaware, O.

GRAPES ON LAKE ERIE. — The members of the Lake-shore Grape-Growers' Society, and others interested, have had their summer excursion to visit the vineyards. They assembled at Collamer Ridge, a few miles east of Cleveland; beginning at the successful plantations of the president, Dr. J. W. Dunham. They next thoroughly examined the long range of beautifully-kept vinelands belonging to different proprietors, that extend a couple of miles along the sides and base of this shaly ridge.

The next day the large party re-assembled at Cleveland, taking the Rocky-river Railroad to pass up the Lake Shore. Stopping by the way, they called upon the veteran pomologist and scientific horticulturist, the venerable J. P. Kirtland, and examined some vineyards in the neighborhood; after which they resumed the cars to Rocky River, where teams were waiting to convey them to Dover Bay and Avon Point, which have recently been largely planted with vineyards.

After spending the night at the beautiful town of Elyria, the party resumed their western course toward Sandusky, where they went by steamer down the bay, in full view of extensive vineyards along the peninsula; thence into the lake, and soon reached the famous Kelley's Island. Here a pretty thorough examination of the vineyards was made, and the hospitalities of the citizens were extended to the visitors. Immense quantities of the products were found stored in the cellar of the Wine Company, which had been quarried from the limestone-rock of the island.

Having passed over to Put-in Bay during the evening, the party found quarters for the night, and were again actively engaged in their inspection the next

day ; after which they again took steamer for the main shore to scatter for their several homes.

While enjoying the sail on the lake, the practical tendencies of the party were manifested by the president's calling his fellow-members around him upon the after-deck, where a large party listened to a recital of observations made during the excursion, and to some practical announcements of the principles that should guide us in the management of the cultivated grape-vine. Some of these it is my purpose now to lay before the readers of "The Journal of Horticulture," as being of general value.

Results of their Observations. — The leading varieties planted have been the Catawba and Isabella. The latter has lost favor, both as a fruit for shipping and as a wine-grape. The former has begun to show some signs of being affected by the diseases that have rendered it unprofitable in other localities. These results, combined with the enterprise of the vine-planters, have led them to look for other varieties, some of which will be mentioned.

Ives. — This hardy and prolific variety is justly becoming a great favorite for wine-making.

Norton. — This grape is giving very satisfactory results ; bearing well, and ripening so perfectly as to make a superior red wine. Some of the vines in the vineyard of George Leick at Collamer were remarkably productive of fine bunches.

Delaware has long held a prominent place in the affections of those who have planted it on the Lake Shore. Little complaint is heard in all this region of its want of vigor ; hence it is abundantly productive: so that, with its charming appearance and excellent quality both for packing and for wine, it has been a leading favorite, and has been extensively planted.

Concord does not appear to be so much liked here as some other sorts, though it has probably been more extensively planted throughout the United States than any other grape ; and its perfect health, vigor, and productiveness cannot fail to make it the grape for the million.

Diana has very warm admirers ; and no wonder, if it be always so well clothed with beautiful bunches as were found in some vineyards.

The *Clinton* appears to be deservedly gaining favor, and winning its way after a long neglect of its excellent properties for a late grape that will yet ripen perfectly even in northern latitudes. When fully matured, it is very sweet and good.

The *Iona* appears to succeed very well in this region. It was seen in many vineyards, not merely in new plantations of vigorous young vines, but it was also found in bearing ; and the fruit was fine, free from any evidence of disease, and promising, with a few weeks of autumn sunshine, to surpass even the fine exhibitions heretofore made by Western growers. A new feature was discovered on some vines, in the fulness and compactness of the bunches, which resembled the normal character of the Diana in a remarkable degree. Good accounts were received of the behavior of this vine from almost every quarter.

The *Rogers's Hybrids* begin to make an appearance in the vineyards, but not to any great extent. Some of these were found fruiting, and the fruit seen color-

ing on the vines. The future of these vines may yet develop a history of note, and we may see them occupying a prominent place in the vineyards; but, among the numbers of new seedlings now being produced, there must surely be some of superior excellence.

Modes of Training. — The ideas of cultivators are not settled as to the best methods of training the vine. The practice varies somewhat, according to the use of stakes or wire-trellises for supports. The introduction of three wires stretched horizontally is gaining favor, and is certainly that which is most easily managed during the summer. The difficulty most apparent is the leaving of too much bearing wood, and the consequent overburdening the vines with fruit.

Trimming. — In the same connection, the winter and summer trimming of the vines comes under consideration. I believe too much wood is left in the winter, and too much is cut off at midsummer. The severe shortening of the shoots in summer, removing immense quantities of the foliage, cannot fail to be injurious to the vines in more ways than one, and will affect them both in root and in branch.

To avoid the excessive development of shoots and foliage, it is necessary to do the summer pruning earlier. Do the rubbing-out of superfluous shoots, and the pinching-in of those that need to be checked, as they commence their growth; so that the force of the vine may be directed into its proper channels, instead of being wasted by the indiscriminate and barbarous methods pursued in some vineyards.

Allow the shoots to grow, let their leaves and buds perform their proper functions, and reduce them to their just proportions at the season of the winter-pruning. Much will, of course, depend upon the peculiar habit of each variety. The good sense of the vigneron will be needed in all his operations to apply correct principles with a view to the peculiarities of the subject under his care at the moment.

Cultivation. — Everywhere throughout the region of the Lake Shore, the cultivation of the soil in the vineyards appears to be excellent. Thorough drainage of the heavy clays is requisite as a preparation for the vine; and it enables the farmer to stir the soil frequently. Various implements are used to effect this purpose: some prefer the common turning-plough; but most apply some of the various modifications of the cultivator. Horse-power is an essential in these extensive plantations; followed and completed, of course, with the hoe, which requires a considerable amount of manual labor. A weedy vineyard is the exception: indeed, such a thing was hardly seen along-shore.

Disease. — There was very little appearance of any serious trouble in the vineyards of this region; and yet they cannot be said to be free from evidences of the existence of the malady which has been so destructive in other places. At present, this seems to be manifested chiefly in the foliage, and has shown itself in the curled and browned margins of the leaves, which are here called *sunburnt;* a pleasant delusion for those who do not know the mildew. The spots of this disease in white patches on the under side of the leaves, with a corresponding blotch of decoloration on the upper surface, were not unfrequently met with, and will no doubt produce their legitimate effects in the loss of

foliage, and, where this is extensive, in the deficient coloring of the fruit. Over-fruiting and mildew on the foliage must necessarily be followed by inferior quality of the vintage. In some previous years, these conditions have been observed to a considerable extent on some of the older vineyards even in this favored grape region; and, while viewed as indications of trouble, they should also be taken as a lesson to direct future management.

Unfortunately, we know as yet very little of the nature and causes of these diseases of the vine. But we must not fold our arms in apathetic indifference: we must diligently study these epiphytic troubles, and endeavor to counterwork them.

This summer-meeting was enjoyed by a large number of the members, all of whom expressed their satisfaction and pleasure in the trip, and their determination to be present at the annual exhibition at Painesville, Oct. 14, and their hope to attend future summer excursions among the vineyards. * * *

AGRICULTURAL NEWSPAPERS. — We have been reading our agricultural exchanges lately with a little more care than usual; and we are astonished at the glaring defects some of them exhibit. Too many of them consist simply of extracts cut from better journals, and copied, often without giving credit, or even hinting at the source from which they came. We have a grievance of our own in this matter; for it has repeatedly happened that articles that have cost us time and money have been transferred from "The American Journal of Horticulture" to the columns of others journals without so much as saying "Thank you." We are glad to be able to put ourselves in a position to be quoted from, rather than to be obliged to quote from others; but, when our exchanges borrow from us, it is certainly fair for them to put something more than "Ex." at the end of the article.

Again: some journals fill their columns with loose statements of facts; partial and careless reports of crops, and their yield per acre; and sometimes publish editorials filled with puerile theories and idle notions that must be very distasteful to plain-working farmers, who want something practical, or at least some advice that they can reduce to actual practice.

It by no means follows from what we say that we have not some excellent agricultural journals. We can safely say that we have three or four of which we are justly proud. Any farmer will "go farther and fare worse" if he looks for a better newspaper than "The Country Gentleman." We consider this a model paper; and we must add, that its large band of regular correspondents do much to maintain the character of the journal. At the same time, if we may find fault, we should say that it has one writer who lives in a state of chronic colic, and sees no good in any thing. Cannot he improve a little? — *Ed.*

THOMPSON & MYERS of Brookfield, Mo., write us that they have "a *real* seedling of the Concord Grape." They say also that their Surprise, Ellisdale, and Red Queen Raspberries have done remarkably well, although the season has been remarkably dry; so dry, in fact, that blackberries have not made one-third of a crop.

ASPARAGUS. — M. H. L. asks us for a little information about asparagus. We have the promise of a very thorough paper on this vegetable from one of our correspondents, a practical cultivator; but it has not yet come to hand: and we think we cannot do better meantime than to quote from Mr. Fearing Burr's "Garden Vegetables of America." Mr. Burr says, —

"*Soil and Planting.* — A deep, rich, mellow soil is best adapted to the growth of asparagus. In the forming of a plantation, cold and wet situations should be avoided; and a sandy subsoil, where it can be obtained, should be preferred to a subsoil of clay or gravel.

"Before planting out the roots, the ground should be thoroughly trenched two feet or more in depth. As the soil can hardly be made too rich, incorporate in the process of trenching a very liberal quantity of well-decomposed manure with a free mixture of common salt.

"Lay out the land in beds five feet apart, and running north and south, or east and west, as may be most convenient. Along these beds set three rows of roots, the outer rows being a foot from the borders of the bed, and the roots a foot from each other in the rows.

"The roots may be set in April, or early in May. Throw out a trench, along the length of the bed, ten inches or a foot in width, and deep enough to allow the crowns to be covered three or four inches beneath the surface. There are various methods of placing the roots in the trench. Some spread them out like a fan against the side; some form little hillocks of fine soil, over which the roots are spread, extending like the sticks of an umbrella; others make a ridge along the centre of the trench, and spread the roots on either side; while others remove the soil from the bed, rake the surface smooth, and spread out the roots at right angles on the level, afterwards replacing the soil, covering to the depth of about three inches.

"During the summer, nothing will be necessary but to keep the plants clear of weeds; and, in doing this, the hoe should be dispensed with as much as possible, to avoid injuring the roots. In the autumn, when the tops have completely withered, they should be cut down nearly level with the surface of the ground, and burned. The beds should then be lightly dug over, and two or three inches of rich loam, intermixed with well-digested compost, and salt at the rate of two quarts to the square rod, should be applied; which will leave the crowns of the roots about five inches below the surface

"*Second Year.* — Early in spring, as soon as the frost leaves the ground, dig over the beds, taking care not to disturb the roots; rake the surface smooth; and, during the summer, cultivate as before directed: but none of the shoots should be cut for use. In the autumn, after the stalks have entirely withered, cut down and burn as in the previous year; stir the surface of the bed, and add an inch of soil and manure; which will bring the crowns six or seven inches below ground, — a depth preferred by a majority of cultivators for established plantations.

"*Third Year.* — Early in spring, stir the ground as directed for the two previous years. Some cultivators make a slight cutting during this season; but the future strength of the plants will be increased by allowing the crop to grow

naturally as during the first and second years. In autumn, cut and burn as before; dig over the surface; add a dressing of manure; and, in the ensuing spring, the beds may be cut freely for use.

"Instead of transplanting the roots, asparagus-beds are sometimes formed by sowing the seeds where the plants are to remain. When this method is adopted, the beds should be laid out and trenched as before directed, and about three inches of soil removed from the entire surface. The seed should then be sown in drills an inch deep, at the distances marked out for the rows, and covered with rich, light soil. When the seedlings are two or three inches high, they should be thinned to nine or twelve inches apart; and, in thinning, the weakest plants should be removed. In the autumn, cut down the plants after they have withered, stir and smooth the surface, and add a dressing of manure. In the spring of the second year, stir the surface again; and, during the summer, cultivate as before. In the autumn, the plants will be ready for the dressing; which consists of the soil previously taken from the bed, with sufficient well-digested compost added to cover the crowns of the roots five or six inches in depth. The after-culture is similar to that of beds from transplanted roots.

"'Asparagus-beds should be enriched every autumn with a liberal application of good compost containing some mixture of salt; the benefit of which will be evident, not only in the quantity, but in the size and quality, of the produce. The dressing should be applied after the removal of the decayed stalks, and forked in, that its enriching properties may be washed to the roots of the plants by winter-rains.

"'In general, transplanted asparagus comes up quite slender the first year; is larger the second; and, the third year, a few shoots may be fit for cutting. It is nearly in perfection the fourth year; and, if properly managed, will annually give an abundant supply during the life of the maker of a bed or plantation.'"

Ripening of Grapes. — R. W. Holton, Esq., writes to us from Haverstraw, N.Y., Aug. 31, in regard to grape-prospects, as follows; viz.: "Allen's Hybrids and Israella will be ripe this week. The Hartford is also as far advanced. The Iona with me will not be more than one week behind the Delaware. The grape-crop is better than any other crop in this vicinity.

"Any one who has planted good vines, and given them attention, will be satisfied with the results. I think that some few vineyards I have visited this fall are failures only from want of attention."

Our Mobile correspondent tells us that fruit there was never more plentiful or cheap than it is this season, particularly grapes and peaches.

We may note here, that we observed in New-York City, the third week in August, Concord grapes for sale at fifty cents per pound, the best peaches ten cents each at retail, and nectarines at two dollars per dozen.

Fruits lead us on to speak of vegetables; and we notice that tomatoes have gone down in the Boston market from eleven dollars per bushel — the price at which the first home-grown ones sold — to sixty cents per bushel retail, or forty cents wholesale.

METHOD OF TIMBER-CULTURE. — Every man knows, or ought to know, how to plant trees ; yet not every one has learned the science of forest-culture. Too little is written on this subject in this country, and less is known. It is a wise saying, that necessity is the mother of invention. We have now come to that extremity. Our forests are decimated. Our country is brought already to look want squarely in the face. Already it is the playground of the hurricane and long and scorching droughts. Already we transport lumber, for building and mechanical purposes, hundreds of miles, and often more than a thousand, when, with a prudent foresight and active economy, we might possess an abundant supply in our home-towns and on our own farms. On every farm of a hundred acres, at least ten acres should be devoted to a forest-plantation. This ground should be in good condition for a crop of corn. Better plant when the decaying sod which has not been exhausted by any crop will fertilize and favor the growth of the newly-transplanted trees.

Size of Trees. — They should be at least two to four feet in height, grown in nursery before planting in forest form.

First, Transplanted seedlings which have grown one or two years in a seed-bed, and then set about a foot apart in nursery, with good culture, in two years will be in good order for a successful forest-plantation. These can be obtained in some American nurseries at fair prices. Better for him who intends planting a forest to procure his plants one or two years old, and set them in his own ground, as above, where it will be convenient to remove them without exposure to the ground to be planted. This should be reduced to a fine tilth with deep culture, and marked with a plough three feet apart each way, the last furrow cut quite deep. The furrows should cross each other as nearly as possible at right angles. In the spring, April or May, when the soil is dry, and in good condition to work, proceed to remove the young trees with care, securing the roots from the rays of the sun or drying winds to preserve the moisture on the surface ; and carefully set with the roots in a natural position, packing the earth firmly with the hand around them. The first season, and till the roots have become firmly fixed, great care must be taken that the young tree be not disturbed by the cultivator, either by a whiffletree crowding the tops, or the teeth loosening the ground around roots, either of which would endanger the life of the tree. Two or three years of good culture will be all that is needed ; and then the plantation will take care of itself. The close planting will promote the upward growth of the young trees, which, in six or eight years, should be thinned by removing every alternate row ; the second thinning to be performed about the eleventh to the thirteenth year, when the trees will be left six feet apart ; again about the twentieth year, and then the thirtieth, when the trees will stand twelve feet apart, or three hundred trees per acre.

If a pine-forest be planted, they should be set twelve feet apart in rows, at right angles, and two rows of the larch or other trees planted between each two rows, and the plantation stand three feet apart as in the former case. The pine-tree is valueless for timber until it has arrived to a considerable age ; while other timber, particularly the European larch, is valuable at all stages of its growth, as it is almost imperishable. Whatever the kind of timber be that is set between

the pines, it should be removed from time to time as the well-being of the pine seems to demand.

The facilities for the production of forest-tree plants in European nurseries, especially the larch and evergreen, enable them to furnish us with the seedlings of the latter at far less cost than they have hitherto been produced in this country. The European larch may be planted and successfully grown on our rocky hills and poorest soils. Very many waste lands of New England and other parts of our country might yield millions of dollars' worth of timber, and at the same time be rendered beautiful by being covered with trees. *D. C. Scofield.*

Elgin, Ill.

[The importance of tree-planting, even in this comparatively new country, can hardly be exaggerated. The reckless and ruinous destruction of forests here must be followed by the same results that have ensued in the Old World. There is no special interposition of Providence in our favor; and we deem it our duty to do all in our power to remedy a crying evil. — *Ed.*]

Mildew is one of the most destructive diseases which attack the grape. It is most prevalent during moist seasons; and old vines are more liable to the disease than young ones, because they have exhausted the potash from the soil; and, when the leaves absorb carbonic acid from the atmosphere, there is no potash with which to form a healthy salt, and the unhealthy leaves invite the fungi. Wood-ashes, if applied in proper time, so that the potash may be dissolved and carried to the roots, and from the roots to the leaves, are a preventive of mildew. Soap-suds are very beneficial, because they contain a considerable quantity of potash. Sulphur is very extensively used by grape-culturists as a preventive of mildew. Grape-vines in low situations are most subject to this destructive disease. — *Western Rural.*

[*Per contra*, the vines that mildew as bad as any with us are those that have been treated each year, for three years past, with an immense quantity of unleached wood-ashes, so that they cannot possibly lack potash.

It is an exceeding reckless statement to say that wood-ashes prevent mildew. Soap-suds and potash in almost any form are excellent manures for vines; but we have no evidence that they prevent mildew. Till we find the cause, we shall not find the cure; and a positive dogmatic statement, without any qualification, that this or that thing will prevent mildew, must be regarded with much distrust. — *Ed.*]

Early Rose Potato. — By a comparison of the results obtained with the Early Rose, Goodrich, and Buckeye Potatoes, cultivated on a small scale, Mr. J. H. Foster of Kirkwood, N. J., estimates that the comparative yield per acre would be, — Early Rose, 370 bushels; Goodrich, 192; and Buckeye, 181.

Hon. Marshall P. Wilder of Dorchester has growing on his place in Dorchester more than eight hundred different varieties of pears, and has exhibited at one time more than three hundred.

STRAWBERRIES FOR HOME USE. — First, as to varieties. Their name is Legion ; but one is worth all the rest. Get the genuine "Wilson." Then, if you wish to amuse yourself with beds of new and wonderful vines, all well ; but, when you want *berries*, go to your Wilson bed, and you will not be disappointed. — *Cor. Kansas Farmer.*

[It is hard to say whether it is more preposterous for a correspondent to write such rubbish as the above, or for an editor to publish it. Especially ridiculous is it for a man to give directions for the garden-culture of strawberries, and end by insinuating that the Wilson is the only one that will reward the grower. As a market-berry, the Wilson is everywhere acknowledged to be the best, so far as productiveness is concerned ; but what can we say of the horticultural adviser who coolly ignores Hovey's Seedling, La Constante, and Triomphe de Gand ? Besides these three, which every garden should have, there are, we venture to say, twenty kinds, which, with proper care, will give some sort of a crop, and all of which are immensely superior to the Wilson in flavor.

We have twenty or thirty kinds in our garden, but no Wilson ; nor do we intend to set out any, unless we follow the ironical advice of a jocose acquaintance, who advised us once to plant a few "just for our friends."

We once wrote some notes on new strawberries for an agricultural paper ; and our remarks called out a reply from a man out West, who "didn't wish to hear any thing about any new kinds : the Wilson was good enough for him." Happy man ! Did he never reflect that there must have been a time when even the Wilson was not ; that it had been produced by experiment ; and that raisers of seedlings are trying now to do what the originator of the Wilson did, — viz., to produce something better than what had gone before ?

If all were like him, ready to stop short of perfection, we should not have had La Constante, nor the Agriculturist, nor the crowning glory, "President Wilder." — *Ed.*]

THIS season, as usual, the appearance of caterpillars on gooseberry-bushes has caused considerable anxiety in several parts of the country. In many districts in Fifeshire, and particularly at Newburg, a famed and very extensive fruit-growing strath, this pest is doing much mischief. As in the case of other plagues, sundry remedies are being suggested and applied for the purpose of getting rid of the vexatious visitation, some of which savor not a little of the superstitious. For instance, one party has had twigs of broom stuck in amongst the branches of the bushes, and another has planted rue (*Ruta graveolens*) and chamomile (*Matricaria chamomilla*) plants at their roots, for the purpose of getting rid of the pest. These, nevertheless, may tend in some way in making the caterpillars less voracious on the bushes so treated ; for the smell as well as the bitter tastes of such are doubtless disliked by insects. Hellebore powder, lime, and soot have also been applied ; but nothing so effectually destroys the vermin as soot, which is, independently, the cheapest cure and the most certain preventive. When dusted on the bushes after a slight shower has fallen, or after the leaves have been wetted, the vermin will soon drop off the leaves,

and perish. The application of a sprinkling of dry soot round the roots of bushes, when early digging operations are being proceeded with in spring, will act most successfully in preventing their appearance; and this, resorted to in successive seasons, will entirely extirpate the pests. — *Scottish Farmer.*

[We wish a little more attention could be given to gooseberries by our growers. Fine samples of foreign berries were shown a week or two ago at the Massachusetts Horticultural Society's weekly exhibition; and a friend of ours raises various large English kinds on the border of his grapery, where they succeed perfectly. — *Ed.*]

DIPLADENIA AMŒNA. — This, which we may at once state is a most valuable acquisition amongst stove-plants, has been raised by Mr. Henry Tuke, gardener to R. Nicholls, Esq., Bramley, near Leeds. Mr. Tuke also raised from seed the lovely *Dipladenia amabilis*, which was sent out in 1865 by the Messrs. Backhouse and Son of York. This latter was the result of a cross between *D. splendens* and *D. crassinoda*, the former being the male parent; and the seed was sown in March, 1862. This *D. amabilis* is a great advance upon *D. crassinoda*, having a more robust habit, and being of a more brilliant color and a freer bloomer.

Mr. Tuke, having thus been successful in obtaining this very decided improvement on *D. crassinoda*, next endeavored to effect a similar improvement on *D. splendens* by crossing this fine species with *D. amabilis;* and the result is a batch of seedlings differing from each other in habit, one of which bloomed last summer, and has been named by Mr. Moore, in "The Gardener's Chronicle," *Dipladenia amœna.*

This beautiful variety bears a considerable resemblance to *D. splendens* in color; but in every respect it is a great improvement on it. In form it is vastly superior, the lobes being stiff and round instead of reflexed and pointed; and in habit, when we state that it partakes of that of the parent *D. amabilis*, it must be at once seen that in this respect it is also a great improvement on *D. splendens.* In blooming, it is as free as *D. amabilis;* and has better foliage even than that variety, especially in respect to color, as it does not brown as the other kinds do, but preserves a glossy green hue through the autumn.

Mr. Tuke is so successful a grower of dipladenias, that we cannot do better than give a short account of his method of growing them. The soil he uses is composed of rough, fibrous peat, broken to the size of walnuts, with a liberal mixture of sand, adding a few rough bones and good drainage, and potting firm. In the winter, the plants are taken off the wires or trellis, and are kept dry in a house of medium temperature. If they are wanted for a June exhibition, the plants are started into growth in November or December at the latest; if for August exhibitions, the plants are started in February. Mr. Tuke does not plunge the plants; finding, especially in winter, that they do better without. Dipladenias do best by keeping them moderately dry until in good foliage. Many of these plants are killed by over-watering. A moist atmosphere of 65° to 70° is best for early growth, gradually increasing to 80° and 85° as the plants progress. They also do best when grown near the glass, and well exposed to the light. — *Florist and Pomologist.*

CULTURE OF PEAR-TREES IN POTS. — It is the economical method of stowage of pear-trees in pots in orchard-houses, or in common glass-roofed sheds, that gives value to this species of culture. A span-roofed house with boarded sides and ends, and shutters on hinges two feet wide, opening downwards in each side for ventilation, is a cheap structure. Its sides should be six feet high, and its centre from thirteen to fifteen feet in height. A house of this description may be strongly built, with oak posts to support the side plates, and its roof supported inside by two-inch gas-pipes, at a small cost. As far as I can recollect from what has been done here, a house of the above height, a hundred feet long and twenty-four feet wide, ought not to cost more than from £130 to £140; for it must be recollected, there is no glass used but for the roof. A house of these dimensions will allow of the stowage of two thousand pear-trees in eleven-inch pots, having a border in the centre, two side borders, and two narrow paths to give facility to attend to the trees. In round numbers, the area of the house being twenty-four hundred feet, two thousand feet will be taken up with two thousand eleven-inch pots, leaving a margin of four hundred feet for the paths. It is true, that smaller houses may be built; but, from experience in the culture of pyramidal pear-trees in pots, such houses should not be of a less height than thirteen or fourteen feet in the centre, and six feet at the sides. Pear-trees under glass often bloom early in April; and, unless the house they are in is lofty, one of our extra-severe spring-frosts may come and destroy the blossoms. The injury, it is true, may be prevented by using pans of charcoal, as in orchard-houses: but the end to be attained in pear-culture is security without much care; and this is best attained by having the house large and lofty, so as to contain a large body of heated air after a sunny day in spring, succeeded by a severe frost at night.

Being much struck the past season by the size and beauty of the pears grown here on trees in pots, it led to a calculation as to the profit that might be derived from it as a commercial speculation. The result of the calculation was extraordinary. Pear-trees on quince-stocks, trained as pyramids, five years old, and from five to six feet in height, of such large pears as Glou Morçeau, Doyenné du Comice, Buerré Diel, Duchesse d'Angoulême, and many others of the same size, averaged from twelve to eighteen each; the fruit remarkable for their bright colors and clear rinds, without spot or blemish. Fine and well-grown large pears during the winter months, at a low average, are worth three shillings a dozen. So that from two thousand trees, always safe from storms and frosts while in bloom, we may estimate an annual crop of twenty-five hundred dozens of pears. This may, when the trees attain the age of seven or ten years, be put down at thirty-five hundred dozens. When it is considered that a thousand dozens of pears are worth a hundred and fifty pounds, it will be seen that a house of pears may be made a source of profit. So much for growing pears commercially, for which purpose only large and good pears should be cultivated. Small pears, however delicious, are useless for market, and should be grown by amateurs only.

The labor required by a large number of pear-trees is not heavy; the routine of culture being as follows, which I give in the form of a calendar: —

1. The trees should have their surface-soil renewed to a depth of three inches

towards the end of October, and the pots stowed thickly in the house by the last week. They should then have a soaking of water, and be covered with leaves, as is before mentioned.

2. About the middle of March, unless the weather be very severe, they should be uncovered, and, after their abstinence of four months, have a moderate supply of water. While in bloom, if the weather be mild, the side shutters and doors may be open night and day; if frosty, by day only. Instead of top-dressing or renewing the soil in October, it will be a saving of labor to treat pear-trees in pots after the manner recommended for apricots. — i.e., to allow the surface of the mould in the pots to remain undisturbed till after the trees have set their fruit: and, on their removal to the summer-quarters, to scrape off a small portion of it, say to the depth of an inch, and give the rich surface-dressing recommended. This intermission of the autumnal renewal of the surface-soil may go on for two, three, or more years, or till the trees seem to require either top-dressing or repotting.

3. The first week in June, they should all be removed to their summer quarters, and the pots plunged. During the summer, every young shoot should be pinched to three leaves, and the fruit thinned. This is of great consequence. At this season, manure-water will greatly benefit the fruit by increasing its size.

4. During the winter, if any of the spurs on which the leaves have been pinched have grown so as to make the tree irregular in shape, they should be shortened with a short knife.

Pyramidal pear-trees on quince-stocks in pots make a very healthy but not a vigorous growth, so that they are easily kept in order by summer pinching; and they soon form the most symmetrical and beautiful of fruit-trees. Owing to the early blossoming of pear-trees under glass, the season of growth in the fruit is much prolonged; hence its increase in size: but its ripening period is not hastened. This is the case with pears from the warmer parts of France. They have a longer period to grow in than English pears in the open air under ordinary circumstances: but, as a rule, they do not ripen earlier, or, as in the case of the Easter Beurré, not so early; for this kind of pear is often in fine order in France till the end of April.

I ought not to omit stating, that the roof of the pear-tree house may be devoted to the growth of grapes, as the pear-trees will be in their summer-quarters before the vines have made much progress, so as to shade them injuriously. The pear-tree house may thus be a means of double profit. From what I have seen of my Hamburg grapes trained under the roof of my house, a hundred feet by twenty-four feet, in which the pear-trees were till June, I am sure they would pay: indeed, I am quite convinced that a house of this size would give a liberal income to a clever man. — *Thomas Rivers, in Florist and Pomologist.*

THE WINTER OF 1867-'68.—The effects of the winter of 1867-'68 have been of an unusual character, and in some respects most disastrous, throughout the North-west. Upon the opening of spring, thousands of grape-vines started, made a feeble growth, and remain since in a sickly condition; others died after the swelling of the buds or the growth of a few leaves; whilst many thousands never made any show of growth at all. Many fruit-trees, particularly yearlings, acted in the same way; whilst many good-sized trees died later in the summer. The fatality has been of an unusual character, in that varieties considered hardiest have suffered equally with tenderer kinds. In a letter from Mr. T. M'Whorter, a pomologist of many years' experience, he says, that, in his locality, "pears on quince, hedges, and roots of standard pears, have been killed; whilst the blossom-buds of peach-trees have escaped uninjured."

Some have attributed these results to the unusual severity of the winter; others to shallow planting; whilst others attribute it, with more show of reason, to the very dry state of the ground when winter set in. Almost every one knows that a very light frost will kill a tree if its roots are exposed to the air; whilst, ordinarily, a tree that is planted may be frozen solid, root and branch, and come out in the spring all right.

Now, the fall of 1367 was an excessively dry one, so that, when winter set in, the pores of the ground, instead of being largely filled with water, were almost entirely filled with air, leaving the roots in much the same condition as if lying above ground. In this condition, the frozen roots were allowed to thaw out so rapidly as to destroy their vitality, leaving the tops uninjured; which being the case, growth would commence, and continue a longer or shorter time according as the roots were more or less injured.

The means of preventing such injury obviously lies in taking any measures that will leave the ground moist upon freezing up, either by thorough cultivation, mulching, or by saturating the ground with water. The latter would be most efficient, but applicable only on a small scale. Fortunately, such dry falls seldom occur. *C. C. Miller.*

MARENGO, ILL.

AERIAL ROOTS ON GRAPE-VINES.—We have observed on the old wood of the horizontal arms of a strong Rogers's 15 grape-vine in our garden quite a quantity of rootlets more than an inch in length, pushing out near the end of the arm at a point more than a foot from the ground, and growing vigorously. The soil underneath is damp and rich. This may be a common enough phenomenon; but the above is the first instance we have noticed on our own vines. The rootlets make their appearance chiefly at the junction of the new and old wood.

The above was written before we had looked over the August number of "The Florist and Pomologist," where five different correspondents give instances of the appearance of aerial roots on vines under glass; in some cases, in great abundance. That their appearance is evidence of a weak constitution, as some of these writers allege, we cannot believe; but we consider their production to be rather a token of over-luxuriant growth.

LILIUM AURATUM. — I should be glad to learn the experience of contemporaries in regard to this superb lily. My own dates from the summer of 1862, when I received several bulbs, which have since produced a numerous progeny. This lily has proved with me much less easy of management than the varieties of *L. lancifolium*, with the exception, possibly, of *L. lancifolium punctatum*. It increases with the greatest ease and rapidity from scales placed in sand: but the young bulbs require very judicious treatment; for, if the soil or the sand in which they are is allowed to remain very damp, the roots rot away, decay soon extends to the base of the bulb, and it perishes.

With regard to the flowering-bulbs, they also require careful treatment. They frequently throw up a strong flowering-stem, on which the buds form with every appearance of health; then the leaves turn black in turn from below upwards; then the stem itself blackens, and the plant perishes, with the exception, perhaps, of a few bulblets. This has often occurred both in pots and in the open ground; the soil being the same in which *L. lancifolium* grows luxuriantly, — that is to say, a good garden loam mixed with sand, peat, leaf-mould, and old manure. The experience of the Messrs. Hovey and others has corresponded with mine, though in some soils and situations the lily has given no cause of complaint. Nevertheless, it is very hard to discover the precise nature of its requirements. An excess of moisture, before growth is in full progress and after it has ceased, is certainly very injurious. Thorough drainage is, of course, indispensable. My own impression is that a light sandy loam, enriched with thoroughly-rotted cow-manure, will suit this lily better than the soils of which peat and leaf-mould form a large part.

"The Gardener's Chronicle" complains that *L. auratum* often dies after blooming. It has very rarely done so with me; but its misbehavior in other respects has sometimes been vexatious. Mr. Fuller, in "The Horticultural Recorder," speaks of his success with it in the soil of New Jersey. If he and others will from time to time make known their observations upon it, indicating the constituents and texture of the soil they use, it will help materially to solve the problem of its culture. *F. Parkman.*

THE ENGLISH HARVEST. — The belief is now expressed by some commercial writers, that the favorable accounts by cable despatches, of the English wheat-harvest, were incorrect, and designed to mislead. The opinion is mainly based on the fact, that there have been large orders received by cable at New York for hay to be shipped to England; the theory being, that the drought that so affected the hay-crop would also injure the wheat.

[Private letters received by us weekly from England are filled with (literally) glowing accounts of the hot weather, drought, and losses experienced by the farmers. On one farm where seventy cows are kept, visited this summer by a relative of ours, the loss by the dry weather and excessive heat is estimated at £500. With the exception of hay, however, the crops are reported to us as fair; and fruit is good and abundant. — ED.]

THE SCUPPERNONG GRAPE. — We have nad so many inquiries about this grape, that we insert the above for the benefit of the curious. We understand that this variety does not do well as far north as St. Louis.

This most wonderful grape was first brought to notice by Col. James Blount of Scuppernong, N.C., who found it growing wild along the banks of the Scuppernong River. The name was given by Calvin Jones of "The Southern Planter," in which paper Col. Blount presented it to the public in several well-written articles. It is also said that an Episcopal clergyman, grandfather to Gen. Pettigrew, very highly recommended it to the Southern people. It is now generally known and universally esteemed by all the grape-growers of the South, and is destined to revolutionize grape-growing and wine-making throughout America.

Description. — Bunches very small, with four to ten berries of large size; juicy, round, sweet, luscious, rich flavor; skin very thick, light green, marked sometimes with yellow dots, tough; bears handling, keeps well, excellent for wine, splendid for the table, choice for preserves.

There are three varieties, — white, black, and golden-hued. The white is the native, and the one generally known: it makes an amber-colored wine. The black ripens after the white is gathered, and makes a darker wine; though there is no difference in the taste of the fruit. It remains on the vine till after frost, and will sometimes keep till Christmas. The white berries are gathered by shaking the vine: the black are picked. The golden-hued yields a wine of the same color, which readily induces intoxication.

"The New-York Watchman" says, "We have delightful memories of the sweet scents borne on the breeze as we approached Southern homes where the Scuppernong is cultivated. We have never eaten any grape in Europe or America that suits our taste like this, — so sweet, so refreshing, so innocent."

Productiveness. — It is immensely productive, surpassing all others in its almost fabulous yield; a single vine often producing annually from twenty-five to fifty bushels of grapes. One in this county is said to have yielded over fifty bushels this last year. Dr. Niesler of Georgia has one averaging thirty-five bushels. There is one near Mobile that produced forty bushels, bringing its owner over three hundred dollars. Col. Rose of Georgia writes that he has a vine thirty years old that yields annually from thirty-five to seventy-five gallons of wine. There is one near Somerville, Tenn., producing fruit enough for a small family, and making a barrel of wine besides. Two vines are generally considered enough in North Carolina for an ordinary-sized family. Mr. Van Buren estimates that one hundred vines, planted on three acres, will yield every year, after maturity, 5,250 gallons, or 1,750 gallons per acre. Mr. M. F. Stephenson says this estimate is entirely too low; that one hundred vines will yield twice as many gallons at ten years of age, and three or four times as much as they grow older. Mr. Stephenson is certainly correct, if men of undoubted veracity are to be relied on; for there are as truthful men as are to be found in America ready to testify under oath that they possess vines that will yield

eighty gallons each or more. One bushel of grapes will make three gallons of wine. One vine will live for a hundred years, continually increasing in size and quantity, if properly treated. The Scuppernong never fails to bear, never mildews, never rots, and is seldom troubled by frost. There are but few fruit-trees of any kind known to live half as long as the Scuppernong Grape, which is certainly the *poor man's* friend.

Soil. — Its native region is a level, dry, sandy, open soil; though it is also found in abundance in pine-barrens, along hillsides, near the Tar, Neuse, Roanoke, and Cape-Fear Rivers. It will flourish in alluvial bottoms as well as sandy plains. Thousands of acres in the South could be planted: indeed, it will grow in this latitude anywhere that corn or cotton will grow, and is ten times as profitable as either. An acre that will grow thirty bushels of corn will yield three hundred bushels of Scuppernong grapes. It will not flourish in low, wet, heavy land; indeed, no other grape will: it perhaps will come nearer it than any other. It has never been tested in the North and West. Should it prove successful, it will be a rich legacy in the hands of those who first propagate and introduce it.

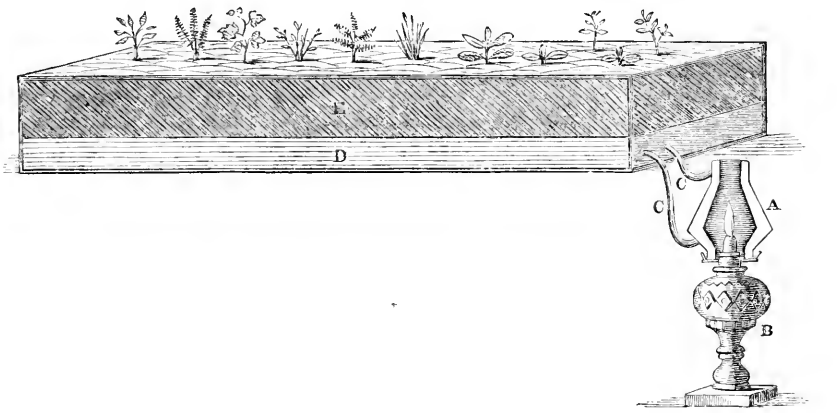
Wine. — The celebrated chemist, Dr. Jackson of Boston, analyzed thirty-eight of the best wine grapes in America, and says, "Scuppernong wine may be made so fine as to excel all others made on this continent." There is no higher authority known. The white variety makes a beautiful pale, amber-colored wine, sweet, rich, luscious, fragrant, very pleasant, and everywhere the ladies' favorite: so says the President of the Memphis and Little-Rock Railroad, who has been familiar with it for many years. Mr. Bunter of N. Carolina, a celebrated vigneron, says, "Its effervescing quality will render it the champagne-grape of this continent." The black Scuppernong makes a dark-colored wine, somewhat stronger and heavier than the variety. A mixture of the two makes a wine superior to either. Col. Rose took the premium in Georgia for this mixed wine. The third variety, ripening much later, makes an exceedingly strong drink, which readily induces intoxication.

The process of wine-making is very simple. The grapes of the white variety are gathered by shaking the vine over a sheet, put into a tub or press, and the juice expressed at the rate of three gallons to the bushel. A pint of whiskey or brandy, or two pounds of white sugar, or a part of brandy and sugar, are added to each gallon of juice; put in a clean barrel; suffered to stand for a month or more, then drawn off and bottled or barrelled. The crude wine is worth one dollar and a half per gallon; at ten years of age, from three to five dollars per bottle. — *Cor. Dixie Farmer.*

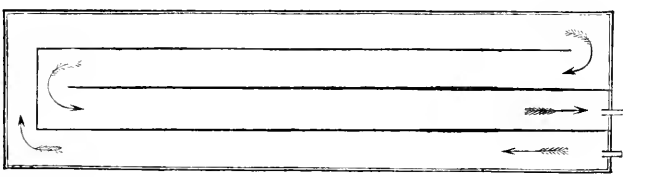
SQUASHES. — So far as we can judge from indications at the present date (Sept. 3), we shall have an excellent crop of Hubbard, Turban, and Crookneck Squashes. Our soil is an exceedingly poor, gravelly, and sandy loam; and the only manure we applied was Peruvian guano, at the rate of about fifteen hundred pounds to the acre. The growth of the vines is enormous, and the squashes are numerous and large. Marblehead Mammoth Sweet-Corn planted on the same soil has attained an immense size. — *Ed.*

WINDOW PROPAGATING-TANK. — I send you herewith drawings of a window propagating-tank. It is not an invention of my own ; but it embodies so many really good points, that I wish to place it before the public for their use and approval. Its chief recommendations are cheapness, utility, and slight cost both of labor and material with which it may be run.

The chimney of an ordinary kerosene-lamp is made of tin, double, and water-tight, so as to hold water. The water in this chimney is connected with the



water in the tank by means of pipes, through which the water flows. One of the pipes is connected to the chimney at the top, and the other at the bottom ; the pipes entering the tank in the different divisions, as shown in Fig. 2. By means of this arrangement, when in operation, the water in the tank is kept in constant circulation according to well-known principles, warming the bed of



earth placed over the water, giving to cuttings and seeds placed in the bed of earth what is known as bottom-heat. Cuttings of roses, shrubs, grapes, and, in fact, of almost any of the trees or plants found in door-yards or lawns, may be started into growth with it.

The cost of constructing one for an ordinary-sized window will not exceed five dollars, and may be used many seasons. *D. W. S.*

GALENA, ILL.

A LADY CORRESPONDENT informs us that she entirely destroyed the insects which infested her rose-bushes by the use of quassia, and that they thrived better after its use than before. In the report of the Allton (Ill.) Horticultural Society, quassia is recommended for destroying black and green aphis in cherries. Quassia may be found at any druggist establishment. Use two ounces to a gallon of water; boil fifteen or twenty minutes. It will also be found effective in destroying many kinds of insects which infest the flower-garden.

VINE PLANTING AND TRAINING. — The greatest error the novice in grape-growing commits is to plant his vines too thick. This blunder occurs oftener even than the mistake, bad enough as it is, of planting too deep.

It seems almost impossible to the beginner that the little vines he is setting out ten feet apart, with two buds perhaps, and hardly visible in the surrounding soil, can ever grow to such proportions as to interlace and crowd each other.

That this may happen within three or four years is to him a perfectly incredible notion.

Yet vines of some kinds possess such inherent vigor of growth, that, even if set twelve feet apart, they will not only crowd each other at the end of the third year, but will be full of fruit; the clusters of one mixed and mingled with the bunches of the other. Take, for instance, Rogers's 15.

No vine of the twenty or thirty kinds with which I am familiar possesses such vigor and power of making a gigantic annual growth as this. In April, 1864, I set out a layer of the Rogers's 15, a little slender bit of a vine, with few roots, a knitting-needle cane, and one living bud; and to-day the dimensions of the vine it has made are as follows: —

Diameter of main stock, two inches; diameter of the two arms, one inch; diameter of upright canes, about ten feet long, — of this year's growth, three-quarters of an inch. A vine on each side of the above-mentioned Rogers's 15 prevents its extending laterally; but I have no doubt, that, if it had not been checked, it would now have strong horizontal arms, each twenty-five feet long, and furnished completely with upright canes. I am training a fine vine of the 15 with a single horizontal arm, just to see how long a vine I can get; and I presume it will be limited only by the bounds of the garden. Now, it seems to me not only a waste of vines and money, but a piece of extreme folly, to set Rogers's 15 vines six, eight, or ten feet apart. If I were setting out a vineyard of this variety in moderately rich soil, I would not have the plants an inch nearer to each other than fifteen feet in the row. At the end of the third year, the vines would touch each other. The Concord is almost as strong a grower; and I know of no good reason for setting Concord vines with less than twelve feet of space between them.

I and some of my friends have had vexatious proof of the mistake made in setting Concords too close; for we have been digging up three-year-old vines this and last spring in order to relieve our trellises.

The Diana, too, is a prodigious grower, and needs all the room it can get. I have vines, that this season, in a rather poor soil, with no manure and no special attention, have made canes twelve feet long and three-quarters of an inch in

diameter, and have not yet stopped growing. To allow these vines room, I must take out some others.

Even the Iona is now beginning to show itself a vigorous and almost rampant vine, demanding plenty of room. I say *now*, because the feeble little twigs sold and bought three or four years ago as Iona vines have needed three or four years of elaborate coaxing to get them to show the true character of the variety. I have Ionas that have made this summer a growth rivalling that of the Dianas, their next neighbors on the trellis.

The Hartford Prolific, Clinton, Rogers's 19, Taylor, Franklin, Logan, and Creveling are all good growers, and some extremely vigorous. No system of pruning without the exercise of the utmost vigilance will keep the Clinton, for example, within any reasonable limits. All these varieties, it seems to me, need quite as much room as the Concord. If any exception must be made to the general rule we are laying down, and if any one vine must be planted close, probably three growers out of four would declare the Delaware to be the kind. But is this really so? Is the Delaware, under favorable circumstances and in a suitable soil, the poor, weak invalid that so many consider it? I have had Delawares, to be sure, that have stood still for years, gaining nothing, and losing nothing; and again I have a Delaware that to-day (Aug. 10) can show vigorous canes of this season's growth ten feet and more long, and still growing.

This seems to show that even Delaware vines may be profitably planted in some soils very far apart, and yet fill up the trellises.

Reviewing the whole matter, and judging from my little experience with a few hundred vines, knowing how rapidly the vines occupy and fill a trellis, and knowing too, by trial, how unsatisfactory it is to be compelled to take out and reset old vines, I must say, that, in planting a new vineyard, I would have at least twelve feet between the vines; and perhaps I should even insist on fifteen. I do not know any arguments that can have much weight on the other side, or in favor of planting more than five hundred vines to the acre.

One word in regard to training. I do not want to mystify the readers of the Journal with any new theory on this befogged subject, but simply to mention a fact or two. I have numerous vines trained as regular as the pictures in Fuller's Manual, Rogers's 19 and 15, Concords, Dianas, and others; but, although they are very fine to behold, they do not give more than one-quarter of the fruit I have a right to expect from vines of their size and age. The reason of this, I believe, is to be looked for in a radical fault of the system. That is this: With all our pinching and summer pruning, we do not succeed in making the two lower buds on the upright canes so strong and vigorous as the next three or four above; and these two lower buds, on the recognized system of pruning, are our sole dependence for the next year's crop. We cut off and throw away the best and strongest buds, and leave the two which are really much weaker than the higher ones.

Anyway, I am so much discouraged by the results of close pruning, that, this fall, I intend either to leave three buds on every spur, or else cut every other one down to one bud, and leave the alternate canes at least six buds long. I expect in this way to get an amount of fruit better proportioned to the strength of the vine.

The strict Guyot system of pruning seems to me so well calculated to avoid the difficulties and loss of fruit I have mentioned, that I mean to test it carefully next season on a row of vigorous Rogers's No. 15. By raising upright canes and fruit on a single horizontal arm one year old, cutting this completely away in the fall, filling its place by bending down for an arm a similar cane of the present year's growth, and repeating this process indefinitely, we put in practice a theory that seems to me in all respects correct.

We use for fruit, be it noted, in Guyot's system, the very buds, that, on the short-spur plan, would be thrown away; and, as we bend down a fresh cane every fall, we have our grapes always on the level of the lower wire. Again: as the cane that has fruited is thrown away, there are never any uncertain spurs: we always work with new wood, and have a regular, symmetrical vine, carrying as much fruit as is good for it.

All I have written may perhaps be condensed into the following words: Plant your vines at least twelve feet apart, — better sixteen, — and modify the popular short-spur system by some innovation that will assure an abundance of fruit, and yet preserve the symmetry of form that gives vine-raising half its charm. *J. M. Merrick, Jun.*

Propagation of Centaurea candidissima. — It seems almost superfluous to attempt to advance any thing new concerning this useful plant, so much has been written of late respecting it; but there are one or two important points which have not, I think, been noticed by other writers, and which some of the numerous readers of "The Florist" may be glad to be made acquainted with. In briefly describing our method of propagation, I will simply state, that, about the beginning of January, we place the old plants in a temperature of from 55° to 60°; and, as soon as they show signs of growing, the tops of the shoots are pinched off, and a few of the leaves removed. This will induce them to throw out a succession of side-shoots; and, as soon as these shoots have made four or five leaves, they are stripped, not cut off, and inserted singly in two-inch pots, and placed in the propagating-house. Now, the placing the cuttings singly in small pots is the point to which I wish to direct special attention. Some cultivators advocate placing several cuttings in a pot or pan; but, when taken out to be potted off, most of the roots are certain to be broken in the operation, so weakly are they attached to the stem; whereas, if placed one in a pot, as described, they can be transferred to larger pots without receiving the least check: consequently, a great deal of time and trouble is saved.

As soon as the cuttings have tolerably well filled the two-inch pots with roots, they are shifted into four-and-a-half-inch ones, using a compost of loam, leaf-mould, sand, and a little peat. They are again placed in a temperature of 60° till they get firmly established, when they are removed to cold frames, and kept moderately close for a week or so. Here they remain until the middle of May, when they are plunged in their summer quarters in the flower-garden. We never turn them out of pots. This is done to prevent the roots being broken off when taken up in the autumn, which is as likely to occur as when they are taken out of the cutting pot or pan: moreover, the plants winter better. — *D., in Florist.*

PEARS IN CLUSTERS. — In looking through a large pear-orchard recently, we could not help observing that on many trees were isolated clusters of pears, generally on the lower part of the tree, and in places well sheltered by the upper limbs. We are told that this appearance of isolated clusters is characteristic of very many pear-trees this year; and we take it for granted that the blossoms succeed in setting their fruit simply by reason of being sheltered from the May rains.

We have raised this season the new English Vegetable-Cream Marrow Squash: and, for fear that some of our readers should do the same thing next year, we give them Punch's "advice to young men about to marry;" viz., don't.

This squash is, with us, insipid and almost worthless; not worthy of comparison for a moment with the Summer Crookneck. If the experience of any of our correspondents differs from ours, we hope to hear from them on the subject.

CYNTHIANA WINE. — We have lately had the satisfaction of tasting, for the first time, a good sample of Mr. George Husmann's red wine, made from the Cynthiana Grape. It is, in our opinion, and in the opinion of some good judges among our friends, a better wine than the Norton's Virginia.

It is, in fact, a rich, full-bodied Burgundy, of an exquisite flavor; and it leaves on the palate the delicious *arrière gout* that marks the finest wines.

With the Norton's Virginia, the Ives Seedling, and the Cynthiana at command, we shall have three choice red wines which nobody need be ashamed to recognize, and point out to foreigners as the results of American vine-growing. We hope the time is not far off, when all three, and especially the Cynthiana, will be abundant and cheap.

FRUIT-CULTURE IN WISCONSIN. — L. L. Fairchild of Dodge County, Wis., writes as follows in reference to the progress of fruit-culture in his section of the State: —

"There are a goodly number of orchards in this county producing from two hundred to five hundred bushels, and occasionally higher, — up to fifteen hundred bushels. We are in latitude 43½° north; and the severity of our winters (the mercury occasionally running as low as 35° below zero) makes it absolutely necessary that only the very hardiest varieties of fruit-trees be planted. Many, having failed with favorite trees brought from the East, thought it useless to try to grow fruit; but the persevering ones, who kept on trying, have found a few varieties that bid fair to stand the test of our severest winters. The Duchess of Oldenburg, Red Astrachan, Golden and Perry Russets, Winesap, Tallman's Sweet, Fameuse, and some others, seem reliable. The quality of our apples I think superior to fruit produced in Southern Illinois.

"We have plenty of wild plums: some of them are quite good, and, on account of the toughness of their skin, not so liable to be stung by the curculio as the tame varieties. The hardier varieties of the tame plums grow finely; but the curculio stings all the fruit.

"Wild black and choke cherries are plenty; but the cultivated kinds are mostly failures. The common Morello grows well, and bears sparsely. The

Early Richmond grows well, but, so far as my observation extends, does not bear very profusely.

"The Isabella Grape, with proper care, will ripen about one year in three. One man tells me, that, by severe cutting back, he succeeds in ripening them nearly every season. The Hartford Prolific, Concord, Diana, Northern Muscadine, Delaware, and some others, do well. They should be laid down and covered in the fall with an inch or two of earth to guard against injury to the fruit-buds. I left a vine each of Hartford Prolific and Clinton on the trellis the past winter; and both are now throwing out fruit-spurs, though the mercury at one time sunk 32° below zero.

"Doolittle Black-cap, Purple Cane, Yellow-cap, and Cincinnati Red raspberries are all hardy, and produce good crops. Brinckle's Orange will not succeed without protection.

"Wilson's, Russell's Prolific, Agriculturist, and some other varieties of strawberries, do well. It is better to cover in the winter, as the frost throws out the roots. The Triomphe de Gand is worthless here, being unproductive. Currants, gooseberries, and tomatoes are abundant."

Cultivation of Fruit in Northern Iowa. — George W. Wheaton, Esq., of Wilson's Grove, Fayette County, Io., supplies the following interesting details of his experience in fruit-growing on the prairies of Northern Iowa: —

"For the last ten years, I have been endeavoring to raise an orchard on the prairie in Northern Iowa. After many disappointments, by not knowing how to do it, and the varieties that would flourish here, I have at length succeeded tolerably well. Raising an orchard here is a very different matter from what it is in Northern Indiana, or other good fruit regions; yet by selecting the proper varieties, and the right kind of cultivation and protection, success is certain. Many persons are deterred from emigrating to this country under the impression that fruit cannot be grown here; but let the news go forth, that, with judicious selection and proper care, as good apples can be grown in Northern Iowa as in any part of the North-west. The proper varieties are hard to find, however, as most nursery-men will recommend such as they have to sell. I am not a nursery-man, and have no trees to sell; but I have tested quite a number of varieties of grafted fruit and a good many seedlings, and my experience may be of benefit to others who contemplate starting orchards in this region. Every person, before paying his money for trees, should resolve to take care of them, or he had better keep his money. Thousands of dollars are lost in this country every year by buying unsuitable trees, and more by not taking care of them after they are planted.

"The varieties which have succeeded best with me are Duchess of Oldenburg, Tallman's Sweet, Fameuse, English Golden Russet, Perry Russet, Roxbury, Antrim, Strawberry, and Red Astrachan. The Duchess of Oldenburg is the hardiest of all; and I never have had any of the trees injured in the least by our hardest winters. The Jonathan also succeeds tolerably well with me; and I have one tree, about ten years old, which last year bore a bushel of most excellent apples. I consider the Oldenburg, Fameuse, and Tallman's Sweet, the most valuable for this place; and they are all abundant and early bearers. Many

suppose seedlings to be more hardy than grafted fruit; but I do not find such to be the case. Out of five hundred seedlings, I have not more than eight or ten as hardy as the kinds enumerated: besides, there is an uncertainty in getting productive trees or good fruit from seedlings.

"The next thing in order is the preparation of the soil. If it is designed to set trees on prairie with a clay subsoil, which most of our prairies have, it should be ploughed at least a foot deep in order to make a better and firmer soil for the trees; the surface soil alone being too loose and peaty, and giving too soft and sappy a growth to the trees. I think it best to set the trees about three inches deeper than they grew in the nursery; and they should be well cultivated until about the middle of July, when cultivation should cease in order to let the trees ripen up for winter.

"About the time the ground freezes, there should be an inch or two of barn-yard-manure spread about the roots in order to prevent dry-freezing, which destroys great numbers of young trees and shrubs on the prairies. I have lost quite a number of young trees from this cause. It is also best to set the trees leaning somewhat to the south-west, as they generally do better when set in this manner than when perpendicular. Before winter sets in, each tree should have the trunk wound with a rope made of prairie-hay, which is an effectual preventive against injury by rabbits, and also prevents the bursting of the bark of the tree. This bursting of the bark seriously injures the tree, and various expedients are resorted to to prevent it. Some nail a piece of siding on the south side of the tree; others tie a few cornstalks around the tree. Either will do some good; but a hay-rope is best: it should be removed in the spring.

"It is a good plan to raise corn in the orchard every year, and to leave the stalks standing until the next spring, as they help to keep the snow on the ground and prevent deep freezing. If a part of the orchard is set with currant-bushes or black-cap raspberries, they will answer the same purpose, and will be found profitable. At the time the orchard is set, a screen should be planted on the north and west sides. A row of Scotch pine set six feet apart, or a row of Norway spruce set four feet apart, will make a beautiful and effective screen by the time the trees come into bearing, if given good cultivation; and young trees can be bought by the thousand very cheap. A good and cheaper screen can be made by planting two or three rows of the acorns of the common black or scrub-oak, which retains its leaves all winter, and with good cultivation will grow rapidly. Fruit-trees in this region should always be planted out in the spring, as they are much more likely to live than when set out in the fall. An important consideration is to set good trees. The best I have, and the best I have seen, came from Wisconsin. From some cause, Eastern trees do not succeed so well here. They are grown too closely in the nursery, and have long, naked stems: no fruit-tree for the prairie should have a naked trunk of more than two feet.

"I have experimented somewhat with pears, as I have a great desire to grow them: but my efforts have not been successful; and, without having had one pear, my trees are now all dead. I have also tested several varieties of plums, but find none that will pay for cultivation. They are all too tender here except

our native wild plum, of which we have an abundance, of good quality, in our groves, and which can be readily transplanted to the orchard, where they will produce abundantly.

"Cherry-trees of the Morello class grow very well, and are hardy; but they have not yet been very productive of fruit with me.

"The Concord Grape grows well, and produces abundantly, and generally ripens its fruit. It has never been attacked with mildew or rot; but the vines need protection in the winter. The Catawba ripens its fruit about one-third of the time when it does not rot.

BEES. *Messrs. Editors,* — As so much is now being said on the subject of bees, I cannot forbear giving a little testimony in their favor.

A relative of mine has for upwards of twenty years lived near this city, and has all the time kept a great many bees. Since he has kept them there, the orchards in the vicinity have borne from two to three times the quantity of fruit that they did before; and some of the neighbors say, that, should he dispose of his swarms, they would be obliged to keep bees themselves to obtain a paying yield of fruit. I have yet to see the man who thinks them other than a benefit.

Insects are the great fertilizers of plants, carrying pollen, which in many instances, without their aid, would never become distributed. What class does so much as the little busy bee? How can a jury of *intelligent* citizens declare them a nuisance?

The people of Wenham and Harrisburg are simply repeating an experiment which was found in the less-enlightened middle ages to be a failure; and they, too, will be convinced of their error, after buying experience.

Aside from their labors in fertilization, bees furnish us with honey; than which I know of no delicate preserve or confection more acceptable to the palate.

Let the people who incline to follow the example of those of Wenham thoroughly study up this subject before they take a step, which, soon or late, they must regret. For articles pertinent to this subject, I would refer you to "The American Bee Journal" for March, and "American Naturalist" for April, 1868.

Truly yours, *F. L. T.*

CLEVELAND, O.

P. S. — I wish some one of your correspondents would write an article on *cacti*. I think highly of them, and would like to know more about them than I do.

FOREIGN EXHIBITIONS. — We observe, that, at the horticultural exhibition held at Nemours on the 24th and 25th of June, a gold medal was awarded to one cultivator, M. E. Ménard of Melun, for *one hundred and ten* (110) new varieties of *Pelargonium zonale;* and to another, Mr. Scipion Cachet of Suisnes, for four hundred and eighty varieties of roses. Besides these awards, various other gold and silver medals were distributed; among them, the gold medal offered by her Majesty the Empress for the best collection of hot-house and green-house plants, which was carried off by M. Houy of Nemours.

KEYES'S AND BATES'S EARLY TOMATOES. — We examined and compared, on the thirteenth day of August, these two varieties of tomatoes, growing side by side, and subjected to the same treatment, in a garden in the vicinity of Boston. The seed of both was planted in the hot-bed the same day, the plants transplanted the same day, and the after treatment was alike in both cases. The Keyes, on the day above-named, were full grown, but green and unripe: a few were whitish, and just ready to begin to turn.

The Bates plants showed a great number of perfectly ripe tomatoes; and the cultivator told us that the vines had supplied his table with ripe fruit for several days.

We noticed, in the same garden, the Maupay, unripe to be sure, but conspicuous for the regularity and smoothness of the fruit.

STRAWBERRIES. — Mr. Barry, of the firm of Ellwanger and Barry, writes to us, that he has gathered and sold *sixty-four hundred* quarts of strawberries from five-eighths of an acre.

The variety was the Wilson, and the average price *eight* cents per quart.

The enormous quantity — being at the rate of ten thousand two hundred and forty quarts per acre — and the very low price are the facts that strike us most forciby.

We have known strawberries grown near Boston, in small patches, at the rate of more than nine thousand quarts to the acre; and it would give us great satisfaction to chronicle next year so good a result as Mr. Barry's from an experiment carried out on an exact acre, by some of our Massachusetts growers.

The low price obtained by Mr. Barry forms a striking contrast with the prices that rule here. One grower, not far from Boston, raised fifty-four hundred quarts on an acre this present season, and sold them for thirty-five cents per quart, or about four and a half times Mr. Barry's price. We believe that the price of fruit of most kinds is higher in our markets than in those of any other part of the country.

OUR valued correspondent, D. M. Balch of Salem, Mass., writes to us about strawberries as follows: —

"I am perfectly satisfied with the Jucunda. Until this variety appeared, La Constante was my favorite. The Jucunda does not equal this in flavor or shape, but in all else surpasses it. The yield is rather more than two quarts to a square yard, and the size uniformly large. I shall plant no other variety, having hoed up and destroyed a dozen kinds. Agriculturist is good for nothing. My Diana Hamburg is growing well. Last season it lost every leaf."

[We should like to have an acre of Jucundas if we could get nine thousand quarts of large berries from it. — *Ed.*]

CREVELING grape-vines with us have set their fruit well this year, showing none of the loose clusters sometimes complained of; and now, middle of August, look extremely well, with the exception of a few specks of mildew.

INSECTS. — *La Pointe County, Wis.* — The potato-bugs have made their appearance, and commenced their ravages on the vines: we do all that can be done to destroy them.

Polk County, Wis. — The potato-crop looks well; but would have been entirely destroyed if growers had not daily picked the bugs, so that but few eggs were hatched. In some gardens, where this was neglected, the tops are entirely eaten up.

Carver County, Min. — Our crops promise well except potatoes, which, on account of the potato-bug, I fear will be a partial failure.

Green Lake County, Wis. — The potato-bugs are numerous, and threaten to destroy the entire crop; but the season is so far advanced that a portion may be spared.

Cass County, Mich. — The ten-lined potato-bug (beetle) is rapidly extending. First seen here last year.

Mahoning County, O. — The cut-worm has been very bad on many pieces of corn: otherwise corn would be good.

Stark County, O. — Corn is backward, and injured by worms.

Linn County, Kan. — The chintz-bugs have injured late wheat somewhat, spring wheat in particular.

Rutherford County, Tenn. — Insects are preying upon some crops. The red ants, the louse (*aphis*), and grasshoppers are injuring the late planting; and the boll-worm has appeared in several localities.

THE WATERING-POT. — On perusing the article "on watering out-door plants," in the August number of the Journal (page 115), it has occurred to me that it may not be known to all of its many readers that the choice of the time for such watering is not necessarily restricted to the hours of early morning and dewy eve. There are places where, from choice, the operation is performed in the heat of mid-day. In the interior of the island of Cuba, under the broiling sun of the tropics, I have often seen the watering-pot in daily and free use between eleven in the morning and three in the afternoon. There is, I believe, a prevailing impression in this vicinity that the leaves of plants watered beneath the rays of the summer sun will wither or blister, and die. Who testifies that such a result follows those showers which visit us during, or are followed by, bright sunshine? I am sure that no such damage ever resulted from the artificial irrigation which I witnessed in "the ever-faithful isle." The garden, on the contrary, continued thrifty and beautiful. Has any reader of this note any experience on the subject? I have in my garden some rose-bushes which have negligently been allowed to sprout from the root and below the point of budding. These shoots are strong and healthy, and I shall devote them to this experiment: instead of digging them out, I shall water them in full sunshine, and report progress. I do not water my plants (except immediately upon transplanting), but rely upon a sharp hoe, a good digging-fork, an iron rake, and a little industry in the use of these implements. *C. G.*

PHILADELPHIA.

THE LOCUSTS. — *Thirteen-Year and Seventeen-Year Tribes.* — We have before referred to a valuable manuscript-work of the late Dr. Gideon B. Smith, of this city, on the locusts which are now swarming and singing in the country around us. It appears that there are not only seventeen-year but thirteen-year locusts; and the work of the deceased author embraces the scientific description of the insect as given by naturalists, its history and its habits in its winged and underground states, its geographical distribution over this country, and its regular appearance in the different districts. In the previous notice, we mentioned the conclusion established by the extensive researches of Dr. Smith, that this locust, in depositing its egg, does all the harm of which it is capable. It has no other mouth, or means of taking food, than three small hairs in its snout, which, in feeding, are spread out over the surface of the roots or leaves of trees; and these collect the vegetable juice, and carry it by capillary attraction to the stomach. Even the injury done in depositing their eggs to shrubbery of value can be guarded against by carefully covering it, from the 1st to the 20th of June, with cheap gauze. We add a few more of the many interesting facts mentioned by Dr. Smith. He ascertained that they had been noticed in Maryland, Pennsylvania, and Delaware in 1766, 1783, 1800, 1817, 1834 (the date of his work), and then afterwards in 1851 and 1868; thus establishing their regular appearance in this district every seventeen years. They do not appear the same year in every district; but each district has a different year for their appearance from that of any neighboring district. Dr. Smith says that the locust is emphatically an American republican insect, and found only in the United States: and that there are two tribes of these insects, differing from each other only in the periods of their lives, — the largest family, the northern, living seventeen years; and the other, the southern, thirteen years. Generally these insects begin to leave the ground about the 20th of May, and increase in numbers till about the 27th of that month, when the greatest numbers will appear; and then in less numbers till about the 5th of June, when no more will leave the earth. About the 15th of June, they commence depositing their eggs; which continues until about the 20th of June, when they cease. The female lays about four hundred eggs, excavating holes for that purpose in the limbs or twigs, to which they are attached by a singularly constructed instrument, about the size of a small pin, designated as the ovipositor. About the 25th of June, the old locusts disappear altogether. About the 25th of July, the eggs are ready to hatch; the insects come out of the excavations, and fall to the ground in great numbers; and so small, that they are like little motes in the air; and their apparent specific gravity so inferior, that they are not injured by the fall. Well does Dr. Smith observe, that, in the whole range of natural history, there is nothing more strange than the fact that a little insect not as large as the smallest ant shall pass into the ground and remain there seventeen years, and then emerge in the form of a comparatively large insect; and that most tribes should re-appear the same month, and almost the same day, once in seventeen or thirteen years, according to the district to which they belong. Having made its way into the earth, it lives during the remainder of the warm season in the vegetable subsoil, and on the approach of cold weather forms around itself a cocoon, or cell, by cementing the particles of earth together; in

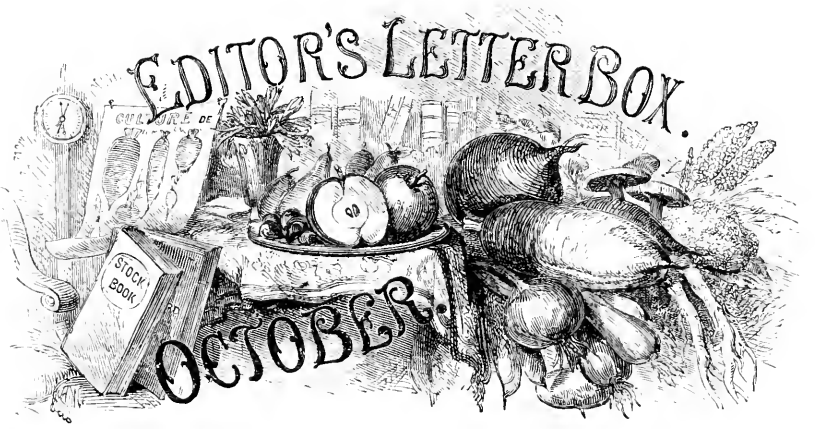
which condition the locusts are often dug up in gardening and excavating, without their real character being discovered. The next season, it opens one end of its cell to gain access to the small roots and moist earth, but does not leave the cell; and thus it continues from season to season, each year enlarging its cell, never changing its locality from the time it enters the earth until it emerges. The musical organs of the locust, by which they keep up the peculiar and universal din from sunrise to sunset, are described at length by Dr. Smith, and the fact stated that it is only the male which has the organ of sound. He says, —

"The musical organs are also very curious, and difficult to describe. Directly under the shoulder of the wing, on each side of the chest, there is a beautiful membrane, somewhat triangular, convex, and ribbed with fine bony ridges. This membrane resembles a small shell, and is stretched over a cavity in the chest, the lower angle connected internally with a strong muscle. On the breast there are two large scales, one on each side, firmly attached to the breast above, but free below. On bending the body backwards, these scales are elevated, and expose two large cavities, also covered with extremely fine and silk-like membranes. These cavities are connected with those under the musical membranes under the wing shoulders, and probably serve for lungs. When these cavities are filled with air, the musical organs or membranes first described are made to produce the sound by the large muscles; the bony ridges of the membranes being made to act upon each other with such rapidity, that the motion is scarcely perceptible."

Whilst the most harmless and defenceless of creatures, this insect has innumerable enemies. Chickens, turkeys, birds, squirrels, and pigs will scarcely touch any other food during the locust season. A curious effect on all hen's eggs laid after feeding upon this diet is that their yolks are nearly white. A remarkable character of the insect mentioned by Dr. Smith is its solitary life. Although in close neighborhood to numerous individuals of its class, two are never found in a cell nor in contact. This is also their character in the perfect or winged state. Dr. Smith has given in the work from which we have gleaned these facts the most painstaking and complete account of this insect in existence, embellished with admirable drawings representing it in all its stages. It is to be hoped that some of our learned societies will have their attention attracted to this valuable and interesting manuscript, and take steps for its publication. — *Exchange.*

OUR correspondent Joseph Hobbins, M.D., of Madison, Wis., — who has lately been elected, we observe, a corresponding member of the Royal Horticultural Society of England, — writes to us from Madison, Aug. 8, as follows: —

"Our fruit prospects in this State are very poor. What with the almost snowless winter and the long and exceedingly hot and dry spell in June and July, our fruit-trees and vines have had little chance of fruiting. I have never known so much injury done to the vines by winter since I have grown them."



THE Editors of "The American Journal of Horticulture" cordially invite all interested in horticulture and pomology, in its various branches, to send questions upon any subject upon which information may be desired. Our corps of correspondents is very large, and among them may be found those fully competent to reply to any ordinary subject in the practice of horticulture. Any questions which may be more difficult to answer will be duly noticed, and the respective subjects fully investigated. Our aim is to give the most trustworthy information on all subjects which can be of interest to 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.

TO CORRESPONDENTS. — We cannot too strongly urge upon the attention of our friends who write articles for publication in this Journal the necessity of taking some little pains in the mechanical part of their work. If they wish to spare our eyesight, and not weary our patience, they will write, not with lead-pencil, or thin, dubious-colored ink, but with *black* ink, on *one* side of the paper; and they will also do us a great favor if they will use small, single sheets, — say

not more than eight inches by five. We have been studying out, this very evening, some articles written with rusty, dull ink, on *both* sides of immense sheets of foolscap paper; and the vexation we experienced is second only to that our friend the printer will undergo.

In brief, we may say that editor and compositor both will bless the man who uses black ink, small sheets of white paper, and writes only on one side.

Will some of our friends take the hint? — *Ed.*

We have received from W. C. Flagg, Esq., of Alton, Ill., specimen bunches of the Herbemont, Norton's Virginia, and Taylor's Bulliot Grapes. They are all good clusters, and the Herbemont very fine; its grapes being what Charles Downing, we think, called them, — "bags of wine."

The Norton's Virginia is not a particularly pleasant grape to eat; its reputation depending on its wine-making properties.

We cut down our only vine of the Taylor last year. It did not bear enough, and its grapes never ripened.

Those that Mr. Flagg sends us are larger than any of our own, and are quite edible. — *Ed.*

F. E. H., Copiot County, Mo. — Our advice in regard to removing and transplanting grape-vines more than four years old has always been of one tenor; viz., don't do it. It is impossible to remove and reset a large vine in a satisfactory manner, unless at an expense altogether too great for profit. A post and wire trellis with three wires eighteen or twenty inches apart has always been our favorite.

G. S. C. — Your plant is one of the many species of begonia; but the specimen sent is not sufficient to enable us to name the exact kind.

F. W. L., Portsmouth, Va. — We receive inquiries occasionally about the so-called Main Grape; and, in answer, usually refer people to the opinion we expressed in this magazine for October, 1867. This opinion we have not yet seen good reason to change. We are watching a vine in full bearing very carefully; and, if we can speak differently about the variety this fall, we shall do so.

Strawberry-Grower. — What is the largest number of boxes of strawberries that you have ever known to be produced to the acre? — Six to seven thousand boxes is the largest quantity we have ever known raised on an acre, while four to five thousand is a very good crop. We do not believe the average amounts to over twenty-five hundred boxes. — See, however, Mr. Barry's story in our "Notes and Gleanings" for this month.

R. R. Thomas, Muscatine, Io. — The seedling double petunia came duly to hand. It is very good, white with purple centre, and seems well worthy of propagation and a name.

M. E. T., Boston. — When shall I take up verbenas and heliotropes? — You need not move your verbenas until the last of October, if you are in the city: if in the suburbs, take them up about a fortnight earlier. Heliotropes are much more tender, and should be taken up before they are touched by the frost.

All plants repotted from the open ground should be somewhat pruned in.

H., Santa Cruz, Cal. — The plants for which you wish names came in good order. Some of them we must study up; for we are seldom favored with queries from the Pacific coast. Number one is a rhododendron; number two, an azalea; number three, a cænothus. The plants you mention would prove hardy with you; but we cannot tell you where to get seed.

POMOLOGIST, Brighton. — Your pear is Beurré d'Aremberg; the apple, Northern Spy.

H. D. MERRILL, Louisville, Ky. — We honestly believe "The President Wilder Strawberry" to be the best ever raised; otherwise the publishers of "The Journal of Horticulture" would not have paid so high a price for the stock.

TYRO, Elmira, N.Y. — Number one is *Anemone Japonica;* number two, a very poor chrysanthemum, which we cannot name.

I. M., Shelbyville, Ind. — Number one is not a *Penstemon*, but *Dracocephalum denticulatum;* number two is *Scutillarea serrata;* number three, *Chelone glabra*, the white-flowered variety.

STOVE-PLANTS, New-York City. — The flowers of achimenes and of many gesneriaceous plants are very difficult to transport, and those sent are wholly undistinguishable.

Eucodonia (*Eucodonopsis*) *Naegeloides* is one of the most charming of the family. It is figured in "Flore des Serres," vol. 16, plate 1; and is a hybrid between *Eucodonia Ehrenbergi* and *Naegelia zebrina splendens.* In both foliage and flower, it is a beautiful plant. Some charming *Naegelias* are figured as above, plates 1671–2.

I. W. MCINTYRE, St. Louis, Mo. — Your letter was mislaid. You will find full directions for the construction of both Wardian and Waltcnian cases in "Flowers for the Parlor and Garden," published at this office.

I. COCHRANE, Havana, Ill. — Your plant is *Cassia Chamæcrista*, or Partridge Pea, a very pretty species.

W. T. M., Groveland. — Our November number will contain an article on crocus-planting. Meanwhile look through the volume of "The Journal of Horticulture" for last year, and you will find a list of varieties, and some useful articles upon bulb-culture.

L. I. T., Worcester, Mass. — You will find *Stuartia* and *Andromeda arborea* in Parsons & Co.'s Catalogue. Messrs. Parsons introduced the *Stuartia* to cultivation, and certainly should have it for sale. We have many inquiries for it. Will any nursery-man having a stock inform us?

Our plants came from Parsons. The double hepatica you must import from England: we know of no one having it for sale in this country. Try, however, for all these, L. Menand, Albany, N.Y., and Eugene Baumann, Rahway, N. J.: they have a choice stock of nice things.

H. A. B., Middlebury, Schoharie County, N.Y. — The blisters on the peach-leaf sent are caused by the punctures of minute plant-lice (*Aphis Persicæ*). It rather disfigures than injures the trees. Remedy: syringe with a weak solution of whale-oil soap as soon as the leaves begin to curl. The pear-leaf has also been punctured by an aphis: the remedy is the same.

The slug attacking the pear-leaves is *Selandria cerasi* (Harris). Ashes or quicklime sprinkled over the leaves, or a syringing of whale-oil soap, will effectually prevent his ravages.

Your plants are *Lamium rugosum*, purple flowered variety.

Your plant not in bloom is *Polemonium reptans*.

Beginner, Sandusky, O. — What is the best autumn-blooming perennial? — Undoubtedly *Anemone Honorine Joubert*.

Cambridge. — We have been troubled this year for the first time with a slug or worm that has completely destroyed the foliage of our pear-trees, so that they appear as if fire had been over them. Only the woody, skeleton part of the leaf remains. Can you inform us if others are troubled in the same way? What is it? and what the remedy, or preventive? — We have noticed quite a number of orchards and nurseries that have been visited by this new enemy, and have heard of several others. We have never seen the "critter" that has done the mischief, nor do we know any thing of its habits, and cannot, of course, prescribe a remedy. We have been somewhat alarmed at the appearance of this new obstacle in the way of successful fruit-growing. We have been congratulating ourselves, that, while the apple-orchards were being nearly destroyed by the canker-worm, the pear had no formidable enemy; but, if all accounts are true, we have reckoned too strongly in this direction. We hope some of our observing readers have been paying proper attention to this leaf-destroyer, and will in due time give us the result of their observations.

PROGRESS AT THE WEST.

It might be stated that the fruit-crop at the West is a failure; perhaps more complete than any year within its present history. The apple-bloom was light; and south of 39°, as far as Vicksburg, the frost of April 4 destroyed nearly all the fruit. North of 39°, the crops did not set well, apparently for the want of fertilization; and a large share of that which remained has been ruined by the codling moth. Added to this, they are knobby, and generally small. We are realizing what President Wilder has so correctly stated, "that the loss of the fruit-crop is a public calamity, equal to that of the grain-crop." The curculio has made sad inroads into the peach-crop; and what do mature are less than the usual size, probably owing to the long heated term. Plums cut no large figure at any time. The Early May Cherry has a position in our market; but, with the exception of the north tier of counties in this State, this also proved a failure.

The planting of large apple-orchards is being continued in all parts of the State: twenty to twenty-four feet is the usual distance to plant. Apples that carry well, such as the Winesap, Rawles's Janet, Willow Twig, Jona-

than, Ben Davis, Gilpin, Smith's Cider, Dominie, and Wagener, are the most in demand.

In peach-orcharding there is a pause at present. The May Cherry is being largely extended: trees on Morello sprouts are the most in demand. It is a fact generally conceded, that this stock has much to do with the productiveness of this variety. In orchard-culture, the ground is kept clear of weeds and sprouts. One orchard sent two thousand bushels to the Chicago market. Plums are receiving more attention, and promise well on our timber clay-lands. Strawberries have become a staple crop, and the plantations are being extended. The crop was very light this season; but, in all cases of heavy mulching, there was little if any falling off. It is now well understood, that, in prairie-culture, heavy mulching is essential to success. Raspberries have not, thus far, met the expectations of planters; and slow progress is being made.

Grape-culture is rapidly extending. The spiral system of training is simplifying and reducing the cost of culture; making the vines more vigorous, and largely increasing the crop. South of 40°, wine is the object; and, north of that point, they are mostly sent to market. Hartford Prolific, Concord, Ives, and Clinton are the varieties mostly in demand for planting. When used for wine, a certain proportion of Norton's Virginia is requisite. The Catawba is regaining its health, and promises to resume its old standing as the best wine-grape.

The market-demand for currants is beyond the supply, and planters are extending their plantations. The gooseberry has never been popular at the West, and a small supply is all the market will sustain. Commercial market-gardens have been well sustained, and will be largely augmented. The experiment of heating the hillsides by the use of tile-flues laid in the soil as for draining, and heated with fire-heat, will have a more extended trial: the experiment gives great promise of success. In this case, hot-beds and glass must give place to this new system of early forcing. Hot-beds and glass have little chance in the market-race against artificially-heated hillsides, sunny skies, and cheap freights.

Arboriculture, or forest-tree planting, is becoming popular; and thousands of acres will be planted next spring, mostly in shelter belts. The value of these to orchards and farm-crops is too apparent to need further argu-

ment. The growing of forest-tree seedlings has become an important item in our horticultural operations; and yet it is in its infancy. The largest plantation of evergreen seedlings in the United States is at Waukegan, in this State.

As a general thing, our orchards and small-fruit plantations are making a healthy growth. Perhaps we ought to except the pear, which has suffered considerably from the blight this season; so much so, that orchardists have come to near a dead halt in regard to further planting. Immense quantities of apple-seedlings have been grown this season for root-grafting. In one field, one hundred and eight bushels were sown.

Hedging with the osage is being pushed with great vigor, and with the most satisfactory results. The plants are set in a single row, and about a foot apart. If well cultivated, they will make a fence in three years. One man sowed three hundred bushels of seed, and many others one to two hundred each. One and a half to two bushels are sown to the acre. It is sown on new land free of weeds; and, at one season's growth, the plants are ready for the hedge. The retail price is two dollars and a half per thousand; at wholesale, two dollars.

Labor has been rather abundant, and at reasonable rates; which has enabled cultivators to push these enterprises forward.

Hop-culture is beginning to attract attention, and may become a new feature in our rural economy. Stakes eight feet long, and twine, take the place of poles; thus adapting it to prairie-culture. On the whole, we think the West bids fair to present its share of good things to the markets of the world. *M. L. Dunlap.*

CHAMPAIGN, ILL., Aug 22, 1868.

THE ONONDAGA GRAPE.

MESSRS. SMITH, CLARK, & POWELL, of the Syracuse Nurseries, Syracuse, N.Y., to whom we are indebted for fine specimens of this new grape, speak of the Onondaga as follows:—

"The Onondaga is a seedling originated in Fayetteville in this (Onondaga) county; a cross between the Diana and the Delaware. It appears to be

entirely hardy, quite as much so as the Delaware; and matures its fruit at

the same time with it.

"The color is amber; size good, nearly as large as the Diana; it has a thick skin, and is a good keeper. In quality, it combines in some degree the flavor of both the Diana and the Delaware. In respect to growth, it is much like the Diana; the amount of wood not large, but the fibre strong and healthy.

"We also send a small cluster, which is a seedling of the Delaware; the berry small, but of very fine quality."

Our impressions of the Onondaga, judging from the clusters alone, without having seen the vine, are very favorable. Its taste recalls that of the Diana; but it has a sugary sweetness peculiarly its own. The berries are very thick-set, and crowd one another very much like those of the Israella.

As the Diana is an old favorite of ours, we shall watch the Onondaga with much interest.

The small grape alluded to above was an extremely sweet, delicious little grape; Delaware-like in flavor, without a particle of pulp; but wholly unfitted for general cultivation, unless the size of the bunch and berry can be much increased.

A HORTICULTURIST IN FLORIDA. — No. I.

The Fruits brought from Spain. — Origin of the Florida Orange-Groves. — The Future of Floridian Horticulture. — Position and Configuration of Florida, and their Influence. — Semi-tropical Character of its Climate. — Summer and Sea Breezes. — The Rainy Season. — Nine Months of Spring. — Perpetual Verdure and Bloom. — The Hummocks of Florida. — Soils and Productions. — Commingling of Northern and Tropical Vegetation.

"THE fruits brought from Spain," the Portuguese narrator of De Soto's expedition casually remarks, "are the orange and the fig." This is, I believe, the earliest record of horticulture in Florida; and all that has been added during the three centuries which have elapsed since it was penned, were it possible to collect the brief notices scattered here and there in the columns of newspapers and magazines, would scarcely fill a dozen pages of this Journal.

From the orange thus transplanted from beyond the sea have probably originated the wild orange-groves which at this day cover so many thousands

of acres of the most fertile lands of the peninsula, and make the semi-tropical wilderness fragrant with their bloom, and beautiful with their showy but bitter fruit; and these wild groves are destined to furnish the basis of one of our greatest industrial and commercial interests, and furnish a theme for many a horticultural essay; for the time is not distant when "The American Journal of Horticulture," representing as it does all sections of our great country, will report as fully and minutely the results of each season's operations among the orange-groves and banana-plantations of Florida as it does now those of the peach-orchards of Delaware or the vineyards of Lake Shore or Missouri.

Of the fig, — a fruit worthy of its exalted place as one of the productions of Eden, the companion of the golden *citrus* in the voyage from Spain, — Florida is still the favorite home; but, unlike the orange, it has not broken away entirely from the restraints of cultivation to return to the wildness and rudeness of Nature.

It being my purpose to furnish from time to time brief notes, at least, of my horticultural experience and observation in this semi-tropical region, it seems necessary first to give my prospective readers a notion of the region itself.

Florida — "the land of flowers" — is a singularly attractive country. The unique character of its climate, its peculiar topography, and the beauty and variety of its flora, impart to it an interest possessed by no other portion of our country. To the geographer, the geologist, and the botanist, alike, it is, as it were, a pleasant book with uncut leaves.

The unique character of our State results from its position and configuration. A narrow peninsula running down between two seas into the neighborhood of the true tropical zone must necessarily possess a climate and a flora in some respects peculiar, and quite unlike that of a broad continent lying in the same latitude.

Leaving out of view the northern tier of counties bordering on Georgia and Alabama, the climatic characteristics of which are similar to those of the contiguous States, the seasons of Florida present many striking peculiarities, allying its climate closely to that of the tropics. We have the constant trade-wind and rainy summer of the West Indies, an alternate land and sea breeze, a dry and a wet season, and great uniformity of

temperature throughout the year. The mysterious Gulf Stream softens for us in winter the chilly ocean-winds, brings to our shores the steady warmth of equatorial seas, and clothes our fields and forests with the perpetual verdure and bloom of the Antilles ; while, to temper the heat of our summer, the cool and bracing breezes of the Atlantic, and the balmy and refreshing airs of the Mexican Gulf, alternately prevail, chasing each other back and forth across the peninsula, both being distinctly felt at the centre of the State.

Thus, though several degrees north of the tropical parallels, we have most of the conditions of a tropical climate, and are enabled to cultivate with success the most delicate fruits of the West Indies ; while our peninsular configuration and peculiar position insure us against the intense heats characteristic of most tropical countries.

In fact, the comparative coolness of the summer here is as marked a peculiarity as the warmth of the winter. The mercury often ranges much higher in New York or Boston than in Jacksonville or Tampa. The mean temperature of the month of June last (and June is the hottest month of the year with us), near the thirtieth parallel of latitude, and more than twenty miles inland from the Atlantic coast, was about 80°. At New Smyrna, on the seaboard and near the twenty-ninth parallel, the average temperature of the summer is 82° ; and of the whole year, 72°. The nights are invariably cool at all seasons of the year, and in all parts of the State.

Our rainy season commences about the first of July, and continues till the middle of September, during which time it rains almost every day. The rain falls in heavy showers, accompanied by thunder and lightning, and lasting from one to four hours. These showers generally commence about one o'clock in the afternoon, and are entirely over before six o'clock, leaving at least half the day and the whole of the night clear and delightfully cool.

Our winter, if we must call it by that name, resembles very closely what is called in New England " Indian summer," except that the air is clearer and the skies bluer. A dry, bracing atmosphere and cloudless days are continuous for weeks together. Vegetation in some species of plants seems scarcely checked at all even here (about 30° north latitude), where I have observed the elder (*Sambucus Canadensis*) putting out new shoots and grow-

ing rapidly during the whole winter; and this is only one example out of many that might be named. The delicate white houstonia, several species of violets, and other flowers to me nameless, nestle among the leaves on the borders of the evergreen hummocks, or hide in the grassy wilderness of the pine-openings; while the forests and brookside-thickets are fragrant with the golden bloom of the yellow jasmine (*Gelsemium sempervirens*). Every day of the year, in this land of perpetual efflorescence, a beautiful bouquet awaits the gathering; and our flower-garden extends from sea to sea.

The absence of winter does not, as one might hastily infer, imply continual summer. The true summer here is scarcely longer than the nominal summer of the North. The highest temperature, which is less perceptible here than in the Carolinas and Georgia, continues little more than one-fourth of the year, the other three-fourths being unlike any season as experienced elsewhere, but resembling spring more than autumn or winter; and the weather is, in the main, incomparably delightful.

The exceptions to this pleasant state of things in the matter of weather occur during the months of January and February, mainly in the latter month, and consist in an occasional north-east storm, a chilly rain lasting sometimes two or three days, and a somewhat more frequent cold, rough wind from the north-west, — the "norther" of Texas, I presume, modified and softened very greatly in its overland journey south-westward. During the prevalence of these winds, an overcoat is sometimes in demand. But this somewhat disagreeable weather is the rare exception, as I have said, and the bright, sunny, Indian-summerish days the rule, even here just on the borders of the quasi-tropical zone. Farther south, these cold winds are not felt at all.

The soil of Florida is scarcely less peculiar than its climate. Its predominating character is that of a light sandy loam, superimposed upon a basis of limestone, shell-rock, marl, or clay. The departures from this type, however, are numerous, and extend, on the one hand, to an almost pure sand, and, on the other, to the richest vegetable mould.

Our lands are generally classified as pine-land, hummock-land, and swamp-land.

The pine-land is of every degree of fertility; some tracts being most excellent in quality, — in fact, second to no land in the State, — and others very

poor. In the main, however, Florida pine-land may be set down as moderately fertile, producing, with a little manure, fair crops of corn, cotton, and sweet-potatoes. It is generally sandy, and, to one not acquainted with our soils, has a very unprepossessing appearance. It has generally a sparse growth of long-leaved pine (*Pinus palustris*); and the ground is covered with a heavy crop of the wild grasses of the country, affording excellent and never-failing pasturage; this grass never being killed by winter's frost, nor seared by summer's drought.

Our swamps are alluvial, and of recent formation. They are exceedingly rich, and afford very valuable land, intrinsically the most valuable in the State; but, being heavily timbered and wet, the expense of clearing and draining them is considerable, and they are, therefore, in little demand. When properly cleared, drained, and broken up, the productiveness of such land in a climate like that of Florida is truly astonishing; four hogsheads of sugar, in one instance at least, having been made from the cane grown on a single acre.

The hummocks of Florida are *sui generis*. They consist of high and somewhat undulating tracts of land, covered naturally with a heavy growth of evergreen oaks, red bay, magnolia, hickory, and cabbage-palm, in many parts interspersed with wild orange-groves. The soil is of a superior quality,—a rich, sandy loam, with a large admixture of fine vegetable mould, resting upon a subsoil of limestone, marl, or clay. It is sometimes two feet in depth, and its fertility is excelled only by that of the black mud of the swamps. Hummock-land is at present in greater demand than any other sort, and, for general purposes, is undoubtedly the most desirable land in the State. On many hummocks are found traces of ancient settlement.

The remarkable adaptability of our climate, as well as the almost unlimited capacities of our soils, is attested by our flora.

Here, where I now write, the orange and the peach grow side by side with equal luxuriance and with equally abundant fruitage. So the olive and the apple, the fig and the pear, the pomegranate and the plum, the guava and the strawberry, flourish in the same garden, each, in its season, gracing our tables with its fruit. In a single enclosure may be seen the Indian corn, beans, pease, Irish potatoes, beets, cabbages, and turnips of

more northern climates; and the sugar-cane, cotton, indigo, arrow-root, benne, sisal-hemp, tanyah, banana, rice, and cassava of the tropics.

On my own grounds here, the trees and shrubs of northern and of southern latitudes are everywhere strangely intermingled. The maple and the magnolia marry their boughs in the glen; the hickory and the ash have grouped themselves with the live-oak and the red bay near the house (for art has had nothing to do with these combinations); and thickets of interwoven myrtle, hazel, holly, and alder, skirt Bay Brook and Spring Branch. The modest violet, the retiring wood-aster, and the tiny, pale houstonia, seem as much at home here as the queenly Atamasco lily, the fragrant yellow jasmine, the gorgeous trumpet-flower, or the magnificent blazing-star.

In such a climate, on such soils, and under the conditions and with the surroundings I have thus briefly noted, the horticulturist's experience is necessarily novel, varied, and interesting. *D. H. Jacques.*

Glen Evergreen, Fla.

THE CROCUS.

There is a certain sentiment which attaches to the first flowers of spring peculiarly their own. The blossoms which summer lavishes upon us may surpass them in richness of coloring, symmetry of form, or in fragrance; but they never collect around them the associations which cling to the snowdrop, the crocus, the violet, and the anemone.

After the snowdrop, the crocus is the first of spring-flowers. Its bright and varied colors, its free-blooming qualities, hardiness, and ease of culture, all combine to render it a favorite. But, the reader may say, "Why, in autumn, do you write of spring-flowers?" Simply because now is the time to prepare the garden for a rich display in April and May.

Like most hardy bulbs, the crocus must be planted in the fall, — and the earlier the better, — though often a fine spring-bloom is produced from bulbs which are planted just before the ground freezes up.

We recommend early planting, — say about the 10th of October, or as

soon as the frost has killed the flowers. If we dig up a crocus-bulb which

has been in the ground all summer, we shall find, even as early as the first of September, that it has begun to throw out rootlets, and that the top has sprouted a little. This growth goes on until checked by severe frost; or, if frost is kept out by covering, all winter. In early spring, the first warm rays of the sun call the bulb into active growth, and a few days suffice to bring it into bloom. We thus see the reason for early planting, and also why a warm covering of the bulb-bed is conducive to early bloom.

The preparation of a crocus-border requires some care. The bulbs will grow and bloom in almost any soil; but they richly repay careful planting. First, select some warm southern or south-western exposure, and carefully remove the soil to a depth of about eighteen inches. If the subsoil is cold, and retentive of water, secure good drainage by a layer of stones and a blind drain. At the bottom of the bed, place a good layer of oak-leaves or pine-needles; then fill up with a compost of loam two parts, and one part each of well-rotted manure and sharp sand. Let the bed slope from rear to front, and *towards* the sun. The bed is then ready for planting. In selection of bulbs, no general rule can be followed; for some varieties always make large, others always small bulbs, and often the small flower quite as well as the large.

The bulbs of blue and white varieties are usually small; those of yellow (except cloth-of-gold) and striped are large.

The bulbs are generally imported from Holland, and are for sale at the seed-stores about the first of October, and vary in price from two to four dollars per hundred.

Where only a few are wanted, they are cheaper bought in this way; but, where large beds or ribbon-borders are to be planted, it is more economical to order directly from some Dutch florist. The cost in Holland is about ten shillings per thousand for cloth-of-gold, twenty shillings for large yellow, and from fourteen to sixteen shillings for the various whites, blues, and purples. If separate colors are not required, mixed varieties may be obtained for about seven shillings per thousand. In importing, however, a shilling must be reckoned at fifty cents, to cover gold premium, exchange, freight, and the present unjust and oppressive duty of thirty per cent.

The bulbs should be planted about two inches deep, and about an inch apart each way.

The arrangement of colors must vary with the fancy of the planter. It should, however, be borne in mind, that the crocus is most effective planted in long lines of color, say at least four bulbs deep, or in clumps or masses. If planted singly, or in long lines of single bulbs, they make no show. As a general rule, the colors should not be mixed; for they kill one another, and produce a *bizarre* effect. The different varieties should be kept distinct, as they differ many days in their season of blooming; and, in crocus-culture, the object is to have a blaze of bloom, and bare patches greatly mar the general result.

The bed, once planted, should be left until the ground begins to freeze; then a good top-dressing of fine manure should be applied; upon this, several inches of coarse litter; and over all a thick covering of clean straw, kept in place by poles or boards.

The object is to keep the frost out of the ground, if possible: therefore the deeper the snow is on the bed during the winter, the better.

About the middle of March, or earlier, in New England, according to latitude and exposure, remove the covering. The shoots of the bulbs will be found about an inch high, and a few warm days will bring the plants into flower. After the bloom has past, allow the leaves to fully ripen: never cut them off, as you would by so doing greatly injure the bulbs. It is a good plan to sow portulaca over the bed, or to plant it with verbenas, as thus a brilliant summer-bloom is produced. A few early tulips, hyacinths, scillas, and narcissus may be planted through the bed in the fall at the same time as the crocus. These succeed the crocus in bloom, and are very showy: they should be set in clumps of from five to ten.

Our own crocus-beds are planted in alternate squares of white, blue, and yellow, or in long ribbons of the same colors.

In the autumn, after the flowers are dead, carefully clear the bed, rake it smooth, and top-dress with about an inch of fine loam.

The best varieties to plant are cloth-of-gold, the earliest yellow; Scotch, the earliest white; large yellow, Caroline Chisholm, the best white; Ida Pfeiffer, fine mauve and white; Albion, fine blue striped; Mr.

Vrught and Prince Albert, fine blue; Argus, blue, shading to white; David Rizzio, dark purple; Samson, light blue; Sir Walter Scott, lilac; Duchesse d'Angoulême, fine white; Lilaceus, lilac; Ne Plus Ultra, violet, with white edge; Sir John Franklin, the darkest blue.

The above are all fine, and generally distinct. If names are an object, one may multiply almost indefinitely by importing from Holland, where a variation of time of blooming, a peculiar shading or stripe, are made to constitute a variety.

Thus to whites we may add Mrs. Beecher Stowe (almost identical, however, with Caroline Chisholm), Grand Conquerant or Concurrent, Mont Blanc, Calypso, Queen Victoria, and La Pucelle.

To the striped varieties, La Majesteuse, Bride of Lammermoor, Duke of Cumberland, Elfrida, Rhea Sylvia.

To the blues, Charles Dickens, Loveliness, Lilaceus superbus. The cloth-of-silver, the old *Crocus versicolor*, is white with purple stripes, and should be planted in a mass by itself, as its season of bloom is after the others.

To all who welcome the first tokens of spring, whether in city or country, we say, Plant a bed of crocus. They are cheerful flowers, promising bright days in the midst of storm, and teach a lesson of hope and faith.

The admirable illustration of our article is taken from a group drawn from Nature by Miss Stetson, No. 29, Studio Building, Boston, who excels in portraiture of flowers. We only wish we could have reproduced her excellent water-color in our engraving. *E. S. R., Jun.*

Glen Ridge, October, 1868.

EVERGREENS FOR THE WESTERN PRAIRIES.

I have thought that perhaps I could contribute something for your Horticultural Journal of interest to some persons: so I take the subject of the winter-green trees, usually called "evergreens." The demand for these trees is on the increase from year to year, as we learn their value for beauty, and for screens, and for wind-breaks to protect us from the winter-blasts

of this rigorous climate, and as we learn to raise, cultivate, and transplant them. I have long been a resident of this prairie country; and when I first came into this new country, when settlements were first beginning, it was an unsolved question by many, whether the broad prairies would ever be settled. Many persons could not see how a farmer could live without his piece of woods to go into to get his fire-wood and fencing, and the many other indispensable uses for which wood and timber are almost daily wanted. But I was not many months in learning that trees could be planted and grown, yes, by the acre or tens of acres, as easily as the forests of the timbered countries could be cleared; yes, far easier: but it would take a longer time.

Now, from Chicago west to the Missouri River, about four hundred miles, no prairies are too broad for the settlements to stretch entirely across, and to make good farms, and raise good crops, and stock of animals, and do it with far less inconvenience than they could have done in a dense forest. Yet they are slow to plant trees for the real benefit of their farms and their stock. But they are fast learning that they are paying twice as much for their fencing, fire-wood, and other timber, as it will cost to raise it on their own land; and the prospect is that the cost will continue to increase from year to year, as the pineries of the North become cut out.

After the farmers and villagers have planted many trees of the cotton-wood, white maple, and elm, and partly broken the winter-blasts, they begin to see that a few evergreens are wanted. About the cities and towns, the people are ornamenting their grounds very generally with these beautiful unchanging trees; and as the farmers, and the farmers' wives and daughters, come to town, they see the taste displayed around the homes of the town-people, and insist on having their homes ornamented also. The demand for evergreen-trees in this North-west has been on the increase for some years past; so much so, that the nurseries sold out tolerably clean last spring. There are but few evergreens of good size, say two to six feet high, left in the nurseries, so far as my knowledge goes.

Some persons make a regular business of getting small evergreens from the woods of Michigan, Wisconsin, and Minnesota. These varieties are white pine, Norway pine, yellow pine, fir-balsam, American spruce, hem-

lock, white cedar, and tamarack or American larch: which latter, so far as the wood is concerned, may be classed with the pines and cedars; but it is not an evergreen. I mention the larch in this connection, because I shall have occasion to refer to it hereafter. Many of the above evergreens are valuable for ornament, for shelter, and for timber. All succeed as well in the prairie soil as on the hills and plains of the East. The Norway pine is very scarce, and by many esteemed very high. For my part, for beauty and utility, I should choose the white pine. I have seen many of them, which were planted on the prairie land, that had grown two feet in height per year for five to fifteen years, spreading and stocky, and no doubt will continue that rate of growth for many years to come. I have seen some that grew over four feet in one season. The hemlock is very beautiful, and makes a beautiful screen. The fir is also beautiful. The American spruce is too slow of growth. White and red cedar are only fit for shrubs, low trees, and screens, by trimming down. All these varieties transplant well *when they are carefully handled; never letting the roots dry the least, either by sun or air.* They also need shading the first summer, and mulching.

I have found it more profitable, as a retail nursery-man, to get my evergreens of the wholesale nurseries, than to get those from the woods, at less than half the price. Another great advantage in buying of the nurseries is, that we can get some very valuable European varieties. Norway spruce and Scotch pine are indispensable in a collection of evergreens. I have seen the Norway spruce and the Scotch pine, with their branches spreading twenty-five feet in twelve years, and their tops about that height, a thick and beautiful pyramid from the ground up. What perfect wind-breaks and snow-fences these trees are! Our people are fast learning to appreciate them, and they have drained our nurseries.

But, thanks to the wisely-directed efforts of some of our Western nurserymen, while some are importing small evergreens largely from Europe, others are sowing the seeds by the bushel and by the acre here in our own country, and succeeding beyond all former efforts in this way in the United States. The first week in August, I visited the nurseries of Robert Douglas, Esq., of Waukegan, Ill., thirty-six miles north of Chicago, on the lake. He had seed-beds by the acre, and evergreens by the million. The seed had come up very evenly. He had learned that nice and difficult trade of

raising the delicate evergreens from the seed; and they were green, fresh, and growing. He also had them of two, three, and four years' growth; not many older. He will make a fine thing of this for himself, and a great public good. How these millions of evergreens will beautify and benefit our country around the buildings, orchards, and vineyards, by the roadside, by the mansion, and along the railways! Blessed are they who plant trees, and thrice blessed are they who plant in this treeless country. In future generations, these noble old trees will commemorate our names, and be a lasting monument. *Suel Foster.*

(To be continued.)

GRAPES AT NORTH BASS AND KINGSVILLE, CANADA.

From eight to ten miles west of Kelly's Island, ranging north and south across Lake Erie, are the three Bass Islands, North, Middle, and South, or Put-in Bay, commonly named.

Eighteen years since, Mr. Horace Kelly of Cleveland surveyed this island, then unbroken timber, and purchased it, except a portion bought by George Wires, his assistant, and ever since a resident. Price paid, about a thousand dollars for seven hundred and forty acres. Four years afterwards, the brothers Fox of Kingsville, Canada, bought out Mr. Kelly, and paid six dollars and twenty-five cents per acre. Then but thirty acres were cleared. Not till 1861 were the Fox brothers aroused to an interest in grape-culture. The eminent success of Kelly's Island excited curiosity to try like locations. The soil is a gravelly clay, rather firm of texture. As the island generally slopes towards the lake from the centre, the surface-drainage is good. Eight years since, the first acre was set by Simon Fox. Many other settlers followed the example. The first crops proving the advantages for the grape and wine, land rose very rapidly in value, and great breadths of vineyards were set out. Catawba was almost the sole variety planted. The large landholders became suddenly rich. Simon Fox sold a twelve-acre field four years since, seven acres in grapes, for ten thousand dollars. A gentleman of Sandusky bought nine acres, just planted, at four hundred and sixty-five dollars per acre; and, within a few years, sales of bare land have been made at four hundred dollars per acre.

So much of history, and changes wrought by fruiting the grape on North Bass six years since.

The crop last season was heavy and excellent. The wine was correspondingly fine. I found it all sold on a late visit. It was marketed mostly at Detroit.

The grape-crop this season is not an equal success in all parts of the island. As elsewhere through this vicinity, the Catawbas particularly suffered from heavy showers, both when in bloom and immediately afterwards as grapes were setting, and the size of shot. The damage by washing away the pollen was not so general.

On the 21st of June, a most fearful storm swept over us, the water falling in floods. Mildew in the bunches followed, investing the young sets and stems thick with filmy straws apparent to the naked eye. Growth was checked; and the parts affected dried up, and usually dropped off. Some, though, still cling. The vine was not otherwise harmed in leaf or branch. Many vineyards almost entirely escaped. Some lost two-thirds, and some quite their whole crop, in twenty-four hours. The average loss in North Bass was probably one-half the crop. This may be over-estimated. I speak now of Catawbas. The Delaware, which is our next most important crop, suffered only very slightly here and there, and generally where smothered upon the ground. The Concord seemed quite as much subject to the blight as the Catawba.

In July, early part, and in August, there was no rot, or so little as to be just slightly noticeable. With July, 6th or 7th, set in hot, dry weather, unbroken until late in August. The storming prosces is now (Sept. 1) completed, and we look upon the crop as out of danger.

I will give a few detailed observations, and close.

Mr. Kenny's vineyard of ten acres of Catawbas gives promise of two and a half tons per acre. Aspect south, rows north and south, eight feet distant, trellised. Part was well cultivated; but I found the neglected portion promising quite as well. This is an experiment, but at this stage is incomplete, and will be till a succeeding harvest. Let not the sluggard soothe himself. Extended observations from year to year convince me, and many wiser, that the vines neglected have a sorry history in the run of the years; and I know, that, in the majority of cases, the vineyards doing best at this end of the Lake Shore are among those best attended last season.

The Concords of three years, Clinton, and Delaware, have a fine crop. Two vines of Iona are bearing well; several others make no show of fruit, but are very healthful; Isabellas a fine crop.

Mr. Smith's Catawbas were more severely injured. He joins Mr. Kenny. There is no apparent difference in lay of the land, soil, or treatment. I believe Mr. Smith allowed his vines last year to bear an under-crop. The yield will be better upon the heavier clay. The vineyard of Simon Fox, of eight acres, first set on the island, is bearing moderately. Here the vines not overloaded last season are doing best this. George Wires has an extensive vineyard of the varieties Iona, Israella, Clinton, and Delaware. A hundred Ionas, third year, were bearing moderately. Vines healthful, vigorous, have always been exposed during winter, and have not been the least injured; fruit escaped the June blight. Israella a slight crop; leaves crumpling from mildew. The vines have not come forward evenly, and suffer much by comparison with the adjoining Ionas. The Clintons and Delawares were a handsome show in leaf; vigorous growth and fruit. The Delaware bears the banner for weight of fruit.

Many other vineyards are worth a special study; but this must suffice.

Now a word upon grapes at Kingsville, Canada.

This little town on the Lake Shore, twenty-four miles north of North Bass, weary with years, is destined to a sensation which will cause pricking as of flesh awaking from a sleep. They have tried boring for oil; but it would not ooze. The rising generation now propose grapes. Dr. Allworth ventured two years since; and, lo! now, though the old men will not believe their eyes, an acre of Concords are bearing a crop of three tons! The vines are remarkably vigorous, and will do their work safely and well. An acre of Delawares is also fruiting well on the best vines. There are poor ones of this variety, as the vines set were wretched, purchased somewhere near Montreal. Dianas have a fine growth, and are maturing an excellent crop of fruit; bunches compact, and berries very large. Poor man! some one wheedled him into an acre and a half of Oporto, which, like the fig-tree, has an abundance of leaves, but no fruit. All this, reader, upon *very* sandy soil, unfertilized, and tilled for sixty years.

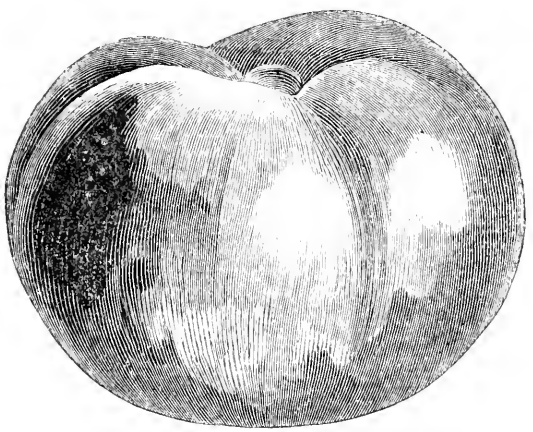
M. H. Lewis.

Sandusky, O., Sept. 1, 1868.

THE COOK'S FAVORITE TOMATO.

This tomato was introduced some four or five years since by Mr. H. A. Dreer of Philadelphia, where it soon became a leading variety, and was extensively cultivated by the market-gardeners for that market, and for supplying the large canning-establishments in that vicinity, for which purpose this fruit is particularly adapted.

It is rather late in coming into bearing, and for this reason has not been so largely cultivated in this vicinity for the main crop as the variety known



here as the Boston Market, which is earlier, and considered more profitable. This variety, however, I consider a very valuable one to follow the earlier sorts, as it bears abundant crops of smooth, solid, handsome fruit, which, for canning-purposes, is excelled by few if any other varieties.

The fruit is of medium size; form oval or roundish; skin smooth, fair, and shining; color deep crimson; flesh firm, solid, containing little water and few seeds as compared with most varieties; bears carriage better, and keeps longer after being gathered, than most varieties; and, for general cultivation as a medium or late variety, one of the best. *C. N. B.*

TRANSPLANTING.

At this autumnal season, a few words upon taking up and potting may not be ill-timed. The little plants which we set out in the spring from thumb-pots, and which, during the bright June days, seemed to stand still, leading us to almost believe they never would grow, took a sudden start in July, waxed strong and vigorous in August, and now, in September, have developed into comparatively gigantic proportions.

The shortening days and the chill mornings warn us that the season of flowers is fast passing away, and that, if we would save our favorites, we must transplant them. What shall we transplant? How and when shall we perform the operation?

And, first, all tender plants must be transplanted.

By tender, we mean those which will not stand the winter, distinguished from hardy, which endure the winter without protection, and from half-hardy, which will stand with more or less protection. Such are all pelargoniums, verbenas, salvias, heliotropes, lantanas, callas, fuchsias, bouvardias, and, in fact, the whole tribe of bedding-plants so called. All our ornamental foliaged plants, such as coleus in variety, iresine, altenanthera, calocasia, come also into the same class. These plants are, as we well know, of different degrees of hardiness; the earliest frost blackening the heliotrope, while the verbena not unfrequently survives till the early snows of winter: but all require winter protection in-doors; and no system of covering has yet made them stand the winter in the open ground, — the greater part perishing from cold, the others damping off.

If we only wish to preserve the plants through the winter for spring propagation or replanting, any light, airy room which can be kept at all times above freezing, say 40° at least, will be sufficient.

We have only to take up the plants, repot them, prune in any undue luxuriance, shade for a few days, and, when the plants become established, give plenty of light and air. Under this treatment, the plants will hold their own during the short days, and, after the turn of the year, begin to grow freely, giving a good stock of cuttings for spring-propagation.

Thus, in a kitchen-window, verbenas and pelargoniums enough may be

preserved to give a large stock of young plants in spring, or a nice show of flowers.

If, however, we wish winter-bloom, we must continue the plants in growth, giving them, on removal, as slight a check as possible, and encouraging them to grow by heat, light, and water.

The process of repotting is very simple. Carefully dig round the plant, and, having provided a pot of suitable size and well drained, take up as large a ball as possible, fill the earth well into the pot, being careful to leave no holes between the ball and the sides ; water freely and shade until the plant recovers. If the plants are very large, or have made a rank growth, it may be well to prune off any undue luxuriance.

Scarlet and other pelargoniums, lantanas, heliotropes, and such plants, are thus repotted.

With verbenas, and plants which run upon the ground and root from the joints, a different mode is adopted. It is simply to take off a shoot with a root, and pot it in a larger or smaller pot as the case may be.

Where it is necessary to preserve all the foliage, as, for instance, with callas and such plants, care must be taken not to allow the leaves to droop, which may be prevented by free waterings.

The time of transplanting varies somewhat. With many plants, if the object is only to preserve the stock, it may be delayed until the frost has killed the foliage ; the plant is then potted, and cut in to the large branches, or down to the root : it soon sends out shoots, and by spring is in condition to furnish an abundance of cuttings.

Some plants, however, are so injured by frost, that they never recover : such are callas, and all plants with juicy, tender leaves. Such should be repotted on the first approach of cold weather, and housed at once.

If we wish winter-bloom, however, we must not allow the foliage to be killed : the plant must be carefully potted and housed before the approach of frost.

If very early bloom, say November and December, is wanted, it is better to repot in August, and grow the plant out of doors until frosty weather : if then housed, it continues growing and blooming.

Perhaps a better method is to pot on from early spring a few good plants, shifting them into larger pots as they grow, and carefully watering them.

The only objection is, they often are forgotten, dry up, become stunted, and never fully recover.

Plunging house-plants with the pots in the open ground during summer is not to be recommended. The pots become full of worms, which are somewhat difficult to entirely get rid of; and usually the plant roots through the hole in the bottom of the pot, and attains a vigor, which, when removed to the house, the soil in the pot is unable to sustain. Plunging in a tan-bed is not so objectionable, and, with care, may be successful.

Some bedding-plants, such as many of the coarser-growing varieties of scarlet pelargoniums, may be wintered in a light cellar most successfully: lantanas do well almost at rest under a greenhouse-stage, and calocasias and cannas may be dried off like dahlias.

We propose to give in our next number an article on the winter-protection of half-hardy plants. *E. S. R., Jun.*

Glen Ridge, September, 1868.

A PATTERN PEAR-ORCHARD.

Some of our fruit-growers have heard of what was going to be done in the way of a pear-orchard by a quondam nursery-man who had retired to the shores of Maumee Bay, near the head of Lake Erie. Our attention was drawn to this enterprise by the correspondence of the planter, as to the success of varieties, which he carried on with leading pomologists in different parts of the country, and by his intelligent queries that were presented at some of the horticultural meetings, where the pear was always his hobby.

Finding that his advisers very nearly agreed with himself as to the selection, he set to work in earnest to produce the trees, and to choose a site for planting them. The rich clayey loams of the drift-formation and the climate of the Lake Shore attracted him; and he selected a small piece (ten acres) of the heavily-timbered lands on the northern bounds of Maumee Bay, nearly on the State line between Michigan and Ohio. Here he is closely surrounded on three sides by the water of the bay and its estuaires;

and thus he secures the conditions of an insular climate to a great degree, as is manifested by the absence of frost, which has already checked vegetation in other parts of the State.

The subsoil is a heavy and retentive clay. This has been pierced by the ditching-spade at intervals of thirty feet, and the ten-acre lot is thoroughly underdrained. Upon this the pear trees are set at intervals of twenty feet; so that two rows will stand within five feet of a drain, and the third will be situated midway between two drains, each fifteen feet distant. This preparation of the soil was the greatest expense to be incurred, and amounted to about sixty dollars an acre; but as the surface is quite flat, and only a few feet above the surrounding water and morass, and as the soil rests upon a tenacious clay, this draining was essential. It has produced very good effects in changing the character of the soil, and in giving increased facility of working it. These results are highly satisfactory to the owner, and encouraging to others who occupy similar lands.

The trees — pyramids on free stocks — are now six years old, vigorous, healthy, and beginning to bear fruit. The orchard is one of the most beautiful collections of pear-trees to be found in many a day's ride. True, they have been well cultivated, and well cared for. They show their keeping, and are the more beautiful in responding to the constant care that has been bestowed upon them. They have been judiciously pruned into shape, though the natural habit of the variety has been consulted in each case; and the result is an abundant crop of fruit-spurs, and already a portion of fruit, that has sold for a nice sum, besides that which was reserved for competition at the State Fair, where it received honorable premiums.

The land between the young trees has not been idle, but has yielded annual crops of vegetables until planted with small fruits that are now occupying a considerable portion of the orchard. In some of the spaces, a row of grape-vines has been planted midway between the trees. Of these, the noble Concord has given the most satisfactory results. The Delaware and some others have suffered from leaf-mildew. On either side of the grapes were potatoes or other vegetables; and in the tree-rows were strawberries, that Mr. Fahnestock finds more profitable than weeds.

In other spaces were rows of raspberries and blackberries, both of which had been subjected to an early pinching of the shoots, that caused a fine

growth of laterals, which, when shortened at the spring-pruning, will make the plants resemble miniature trees rather than straggling bushes and brambles; and, at the same time, they are more abundantly fruitful under this treatment.

But to come back to the beautiful pear-trees, which constitute the leading attraction of the place. It may be interesting to your readers to know what varieties have been selected by an ex-nursery-man of experience, who has been an extensive observer and an enthusiastic admirer of this fruit.

There are seventy trees of Louise Bonne, that have already done good service in the market, — beautiful pyramids of foliage.

Buffums, a hundred, stand in regular rank like so many sentinels: they are draped in rich foliage, holding on firmly to the upright brown shoots that characterize this variety.

A hundred Seckels come next to show what this soil can produce: they are really vigorous; and, though less rampant than those already named, they have many shoots of eighteen inches in length. They are well clothed with foliage, and are bearing large fruit.

Two hundred Sheldons, of beautiful proportions, give evidence of the high appreciation in which this noble variety is held by a New-York nursery-man.

Buerré d'Anjou, a hundred, come next, and make a fine display with their vigorous growth and rich foliage.

Of Bartletts, two hundred is not considered too large a proportion; and, as they have already yielded paying crops, it may even be a source of regret that there were not more of them planted. Though not such handsome trees in the orchard as some others already named, they present a very interesting appearance to the owner when laden with their large and usually fair specimens of fruit; and this variety is so well known in every market, that it meets with a ready sale at fair prices. Like the Concord among grapes, so the Bartlett is, among pears, the choice of the million.

Flemish Beauty eminently fills a place here, two hundred strong, rivalling all others in the vigor and elegant gracefulness of its pyramidal trees. Less stiff, formal, and upright than the Buffum, not so round-headed as the Seckel, more symmetrical than the Louise Bonne, the rows of the Beauty fully justify their name; but it must be confessed that the fruit is some-

what *Flemish*, on account of its tendency to put on a rough russety surface, which obscures its proper lovely hue, as occasionally seen in its more favored localities, which are unfortunately rare.

Besides these leading kinds, Mr. Fahnestock could not do otherwise than plant a goodly number of other varieties. Under the general title of "sorts," he has most of the good pears represented by one and two trees: among these are Easter Buerré, Buerré Diel, Onondaga, Doyenné Boussock, Rostiezer, Oswego, Lawrence, Beurré Bosc, Bloodgood, Stevens, Howell, Belle Lucrative, Winter Nelis, and others. Some persons will probably ask why the Beurré Diel, the Onondaga, the Lawrence, and the Howell were not more largely planted. Simply because Mr. Fahnestock preferred to risk those with the market properties of which he was more familiar, and such as he believed to be really profitable.

Such as they are, these trees and their management are worthy of this brief mention, in the belief that it will encourage other planters to do likewise, as the crop in the sixth year from planting has proved remunerating, and the prospect for future years is such that the owner holds the orchard at a thousand dollars per acre.

No symptoms of blight or other disease have yet made their appearance on these grounds: this may be only accidental, or owing to the isolated situation of the trees, which are quite distant from any other old plantations from which the spores of fungi might be transported. At best, the absence of blight, for six or even twelve years from planting an orchard, is but negative testimony upon this obscure point of pyriculture. Mr. Fahnestock thinks he has escaped because he scores the outer bark of the stems in the spring, whenever he observes it hardening as though it were too tight. He inserts a knife-point into a block of wood, so gauged that it shall sever only the outer layers.

* * *

DRESSING FRUIT-TREES WITH GISHURST COMPOUND.

As the season approaches when gardeners begin to think of winter-dressing their fruit-trees, and as I am a stanch advocate of Mr. Gishurst (for I find the best remedy to be to destroy all kinds of insects to which our

fruit-trees are subjected), I give you the results of some trials with Gishurst, made by me last spring on young orchard-trees. This orchard has been planted for the last six years: and so little progress have the trees made, that I was really astonished to behold the hard, cankery appearance they had, and was led to make use of my magnifier to investigate the matter more closely; when, to my surprise, I discovered under the bark *Episema cærulcocephala*. *E. corticella* Linnæus denominates the pest of Pomona, and not forgetting *Curculio vastator* of (*Marsham*). Most of the trees of another orchard of older date were on their way to the grave, from the effects of *Eriosoma lanigera*. Its generic characters are, having an abdomen (belly) without tubercles; antennæ, or horns, short and thread-form; and the whole more or less cottony or tomentose. The presence of these insects is shown by the white cottony matter in the cracks and excrescences of apple-tree branches in spring. When crushed, they exude a reddish fluid. These insects are injurious by piercing the sap-vessels of the tree, sucking the juice, and causing wounds which ulcerate, and finally destroy the branch attacked, by corroding through all the sap-vessels. The cottony matter is abundant, and, wafted to other trees, conveys to them the infection by bearing with it the eggs or embryo insect. Such, however, is not the exclusive mode of diffusing the disease; for although the females are usually wingless, yet some are probably produced with wings at the season propitious to colonization. The males are uniformly winged. In winter, most of these insects retire under ground, and prey upon the roots of the apple-trees. Trees thus ravaged at all seasons will soon be killed, if prompt, vigorous remedies are not adopted.

But let us return to the subject, — Gishurst Compound. The young orchard-trees were treated with it at the rate of six ounces to the gallon of soft rain-water. In this instance, I did not give any after-washing with water. This caused a few buds from weak trees to drop off, but left more than sufficient for any crop, and made the wood of the trees look clean and healthy. In one part of the orchard, I made a solution for some of the trees that were in a very sickly condition, with eight ounces to the gallon of water, without any after-washing with water. In a few cases where the trees were very sickly, a few limbs showed the effect in the buds falling. In this case, it was only on the sickly trees that it showed its effects. Some

trees which I had washed when the sap began to flow were treated with six ounces to the gallon, and got a washing of pure water afterwards; did remarkably well, except two trees I left unwashed. These two almost died from the effects of the treatment.

The conclusions to which I have come are, that an eight ounce to the gallon solution for trees thoroughly at rest is the best strength, and safest for buds, except, possibly, those of early pears; and that, if a solution of this strength be applied after the wood begins to grow, some buds may be injured. Four ounces to the gallon is safe even when buds have swelled, and is perhaps the best strength for not very strong trees, especially early ones. These remarks not only apply to orchard-trees, but are applicable to the case of fruit-trees under glass; for the Gishurst Compound is the best and quickest remedy to destroy red spider, — one of the worst pests the gardener fights against. *M. Green.*

STRAWBERRY-ROOTS.

We have heard of an amateur who cultivated fifty varieties of strawberry, and prided himself on his ability to distinguish them by their foliage. We have often thought that his task would have been lightened if he had consulted the roots as well as the leaves. The difference in strawberry-roots, their size, and manner of growth, is often striking. We have been setting out this day strawberry-vines taken from the runners furnished by two different kinds, grown close together, in parallel rows; and although the bed of plants was a complete mat, and the leaves very similar, we were able to separate our young plants perfectly by observing the difference in their roots.

If any one wishes to get an idea of this difference, let him compare the roots of three or four different kinds, and he will soon admit that the roots differ as much as the leaves.

The two kinds we separated to-day happened to afford a fine contrast; one being thick and fleshy, and the other filiform.

RAMBLING NOTES.

I HAVE read with much interest the remarks of "Enthusiast" on his favorite flowers, and, while agreeing with all he says of the gladiolus, desire to add to his list a few favorites of my own.

I had in blossom, last summer, some most lovely named varieties of the English iris; and either because it was the first time we had seen it, or from its own great merit, we lingered round the plot with continued admiration. Of phlox I have fifty named kinds: but the really distinct varieties might be reduced to twelve; and Mrs. Kane is, we think, the best of these.

For a fine late bloomer, we like the American Japonica. It is all the better for a little winter protection.

By protecting the blossoms from early frosts, — our method being to hang a basket on a stake over the cluster, — this plant may be kept in blossom a long time.

The red fraxinella claims attention, not only for its beauty, but for its agreeable perfume. The white variety diffuses an odor the reverse of delightful.

We did not mean to speak of flowers, but of evergreens and fruit, when we took up the pen; but a beautiful bouquet of our favorite flowers has led us astray.

Our blackberries were killed by the severity of the winter; even the Kittatinny, which the growers of Newton, N.J., assured us was perfectly hardy. As to raspberries, the Doolittle came out all right; the ends of the Clarke had to be cut back; the Philadelphias were about half killed, and the Purple-cane partly destroyed. Long-continued storms blasted nearly all the apple and pear blossoms. Currant-bushes are but scantily furnished with berries, and the cherries are hardly on the list of fruits. Strawberries were protected by the snow, and came out well.

Lawson's cypress is tipped with russet-brown, as is also Hovey's arborvitæ; while some retinosporas are fit only for the wood-pile.

The pyramidal and the Siberian arborvitæ came through the ordeal safely; but Lobbs is tender. The Nootka-Sound arborvitæ is scorched every win-

ter. Yews have fared badly. We hear, too, of large rhododendrons being killed by the severe weather of last winter. We believe the *Cupressus Lawsoniana* is too uncertain for the latitude of New York; so is the *Cryptomeria Japonica.*

A fruit-grower near here raised some berries of the Jucunda as large as those grown at Pittsburg; but the plants made hardly any growth, and are now very feeble.

Not one of two hundred we set out last fall lived through the winter.

With us, nothing yet has equalled the Wilson. Last year, the only good berries we tasted were Scott's Seedling and the Brooklyn Scarlet.

Those people who recommend the Early Harvest Apple can hardly be aware of the merits of the Primate. It is a good grower and bearer, will answer for cooking as soon as the Harvest, lasts much longer, and is altogether the best early tart apple we know for family use. *I. H.*

North Hempstead, L.I.

PEARS IN ILLINOIS.

In your January number, you inquire for the experience of cultivators as to planting dwarfs among standard pears. I think our experience in the South-west is against it. Dwarfs and standards require radically different treatment. Dwarfs with us need pretty thorough cultivation to bear large, fair fruit regularly, and not become prematurely debilitated; while many growers believe their standards to be healthier if seeded to grass or clover after a few years of cultivation of the soil. Again: dwarfs will be benefited by judicious manuring, in most of our soils, when in heavy bearing; while that course would generally be fatal to standards. I know many men who have planted in that way; and all of them who have any conscience at all in regard to culture are in constant embarrassment in trying to steer safely between the Scylla and Charybdis of pear-culture, — blight and debility. Hence I think that most practical men would advise planting these classes of trees separately; and a majority of my acquaintances would still further advise not to plant the dwarfs at all.

The only practical obstacle to great and general success in pear-growing

in the hill-country of South Illinois is the premature shedding of the leaves to which many varieties are subject. Blight destroys a few trees, while some others may die from other causes. But these difficulties can be met calmly by a brave man; but when half the trees in our orchards stand naked in midsummer, bearing a heavy burden of half-grown fruit, and this for successive years, it becomes a matter for very serious inquiry. In behalf of many deeply-interested men, I ask for the experience and observation of pear-growers in other portions of the country as to causes and remedy. Is it a fault of soil or climate?

From my own orchard, I make the following notes for this season:—

Bartlett, Lawrence, Beurré d'Anjou, Urbaniste, Dix, Ott, Kingsessing, Belle Lucrative, Howell, Beurré Easter, Belle Williams, Van Mons, Leon le Clerc, Ananas d'Été, Dana's Hovey, and Heathcot have held their leaves very perfectly, or quite sufficient for ripening their fruit and to mature fruit-buds. Among those that have done only moderately well are Buffum, Boussock, Beurré Bosc, Sheldon, Dearborn, Tyson, Seckel, Doyenné d'Alençon. The worst tree in the orchard is Flemish Beauty; while Glout Morceau, Beurré Diel, Louise Bonne de Jersey, Julienne, Rostiezer, Josephine de Malines, are all naked as in winter. These trees all stand in good strong clay loam, and have been well cultivated.

Let us hear from other growers. *P. E.*

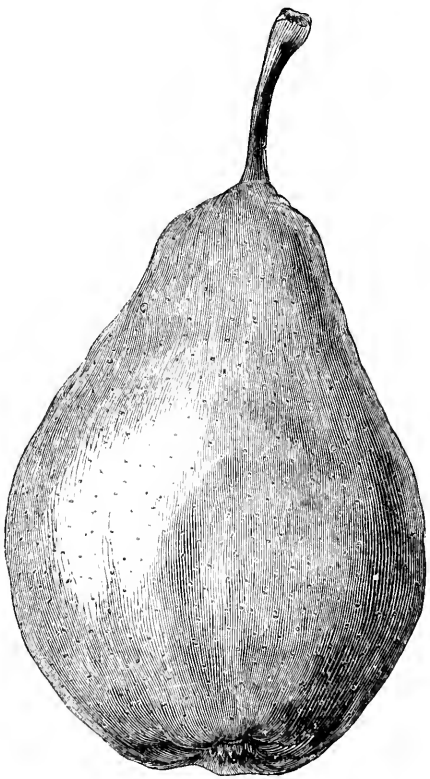
South Pass, Ill, Sept. 20, 1868.

COLEUS, EMPRESS.

The sensational plant, as we may justly call it, of the season, has been the coleus. The announcement that a set of twelve, raised in the Horticultural Society's Gardens, were to be offered by public auction, set the gardening world on the *qui vive;* and the high prices at which they were bought, amounting to nearly £400, showed how much had been thought of them; while at the same time other growers, notably Mr. Bull of Chelsea, had been following the same course in hybridizing, and with equally successful results. — *Floral Magazine.*

CITRINA PEAR.

THIS is another of Dr. Shurtleff's Seedlings, and one that he esteems quite highly. It fruited for the first time in 1862, and proves to be a great bearer. It is of medium size, — short diameter two inches, long diameter three inches; short pyriform; color bright yellow; surface slightly knobby



and uneven; flesh nearly white, rather coarse, and slightly gritty about the core, with a rich and quite peculiar pleasant flavor; stem three-fourths of an inch long, and rather stout, slightly curved with a fleshy, wrinkled base; calyx small, in a shallow, plaited basin; fruit about the size of the largest specimens of the Washington. Ripens in September. Wood rather slender, and of a grayish color.

To the Editor of "The American Journal of Horticulture and Florist's Companion."

Sir, — I passed the last winter in Italy; the greater part of the time, in Rome and Naples. It was some years since I had been there, and the southern part of the peninsula had undergone a great political change. As, of all the countries that I have seen, Italy is to me the most beautiful and most interesting, I was gratified at being able to revisit it. The inducements to visit Italy are various. One great attraction is the charm of its scenery. Its lofty mountains and its luxuriant valleys, its beautiful lakes and noble rivers, its broad campagnas and fertile plains, are constantly presenting themselves in landscapes of unsurpassed beauty. A great number of the trees and shrubs of Italy are evergreens; and this must be considered as increasing the beauty of the landscape in winter, preventing the dreary appearance that leafless shrubs impart, and giving to it the resemblance of summer luxuriance. So great is the number of this class of shrubs, that, in December (the most dead season of the year), I counted in a small public garden over thirty different varieties then in full leaf, and some of them in flower. Another inducement is afforded by the delicious climate in winter, free from the fogs of northern climates, — neither too warm to be disagreeable, nor too cold to be uncomfortable, — with clear skies, a bright sun, and soft, balmy airs. The atmosphere of Italy seems to me peculiar in this, that the whole air seems filled with a transparent haze, that, without obscuring, gives to distant objects, instead of a sharply-cut outline, a rounded, softened form; while at the same time, especially towards the close of day, the whole heavens are filled with a golden light that enhances the beauty of every thing. In Northern Italy the winter is cool, and ice and snow are not unusual, especially near the mountains; but the cold is but of short duration, and the frost soon disappears:

while in Southern Italy there is hardly what can be properly called any winter at all, — occasionally a little frost, with sometimes wet and disagreeable weather, but not sufficiently cold to destroy tender plants, and hardly sufficient to intercept vegetation; so that, under a warm, bright sun, and the landscape gay with the numerous evergreen shrubs, the winter seems but a continued autumn. The grass is gay with daisies all winter. Camellias need no protection, and in February and March are covered with flowers. Geraniums grow in the open air. In February, the almond-trees are in blossom; and, early in March, peaches and cherries; and, in February, wild flowers in variety: wild stocks and anemones may be gathered in the fields and by the roadside. But from this there is unfortunately one drawback, — the malaria that is the bane of some of the fairest portions of Italy. In some naturally unhealthy portions of the country, this disease is thought to have prevailed in ancient times, and, since then, to have extended its ravages; probably owing to the circumstance, that, during a long period of intestine and foreign wars, cultivation was neglected, and, in consequence, the malaria obtained a foothold: and now the malaria prevents cultivation, that it is thought would diminish if not destroy the evil. Different suggestions have been made with a view to eradicating this disease, the most plausible of which is the one that recommends draining where practicable; but I believe no attempts in this direction have yet been made.

There are historical associations connected not only with its cities and towns, but with almost every foot of Italian soil; for no matter whether the events that give rise to such association are realities or fables, they have been made so familiar to most people, even from early childhood, that they constitute a considerable part of Roman history.

Other attractions of Italy are its antiquities, vast ruins, the remains of a people whose empire embraced or controlled the then known world, — a people whose footsteps were so deeply impressed on its soil, that the lapse of twenty centuries, and devastations of all kinds, have failed to obliterate their traces, — and its galleries and museums of sculpture and painting. To these inducements to a visit to Italy, common to all, must be added another; that it is the capital city of the head of the church, — a church that governs the faith and consciences of a greater number than acknowledged the sway of the Roman Empire in its most palmy days, yearly attracting multitudes to worship at shrines deemed especially holy, and to attend observances directed by the church and conducted by its temporal head.

Italy may be said to consist of high mountains and broad plains. The lofty chain of the Apennines runs the length of the peninsula, branching at the south down each of the capes in which it terminates; and from this main chain there are various offshoots, some at nearly right angles, and others nearly parallel with its course. Of this mountain-ridge, the highest are barren, naked rocks, with sometimes their lower slopes capable of some cultivation; while the lower ones of the range have frequently some vegetation. At the base of these mountains lie broad plains, and among them luxuriant valleys, remarkable in ancient times for their fertility, and still maintaining their former reputation. On the northern side of this chain, reaching nearly to the Adriatic, is the great Plain of Lom-

bardy, highly cultivated, and covered with cities, towns, and villages, watered by the Po, the Ticino, the Adige, and other streams. The cultivation of this plain seems to be thorough and judicious: on much of, it three crops are grown at the same time. Mulberry-trees are planted at regular intervals. On each tree a grape-vine is trained, and its branches carried from tree to tree in festoons, while the ground beneath is devoted to wheat or other grain; the mulberry-trees furnishing food for silkworms. In some parts of this plain, large quantities of rice are grown, which, although apt to produce sickness, is a highly profitable crop. On the southern side of the main chain of the Apennines, but separated from Southern Italy by a range of high hills, an offshoot from the main chain of mountains, is the Valley of the Arno, celebrated for its beauty and fertility; with Florence and Pisa, the high grounds around the former occupied with villas surrounded by trees and shrubbery of luxuriant growth. Farther south are other valleys, as those of the Chiente, the Clitumnus, and the Tiber, of unsurpassed fertility; and plains, some of which exceed in luxuriance those on the north side of the mountains. Round the city of Rome is a large extent of level or rolling country known as the Campagna, that was once probably cultivated, but is now, in great part, devoted to the pasturage of large herds of cattle, horses, and flocks of sheep; the malaria being now the cause that its cultivation is neglected, as it is probably also the consequence of former neglect. This Campagna terminates on the seacoast in a large tract of wet, swampy country known as the Pontine Marshes, used for pasturage and as a range for buffaloes. But, rich and fertile as are many of the valleys and plains of Italy, the great Plain of Capua, extending for a long distance round the city of Naples, is perhaps more rich and fertile than any other, so that the same crop may be raised year after year in succession; so fertile, in fact, that, as soon as one crop is harvested, another is sown without any intermission. It is planted for nearly its whole extent with trees, upon which grape-vines are trained; the tops of the trees being cut off, except where the stone pine is planted that produces cones containing edible seeds; the ground beneath being planted with grain or other crops. It would seem as if this mode of cultivation must be uneconomical, but is probably found to have its advantages. Where the sun is so hot, some shade may be advantageous to the grapes and other crops. Fuel is very scarce and dear, and the cuttings of the trees furnish some supply of it; while, the seeds of the pine-cones being a delicacy, some revenue is derived from them.

Besides cereals and vegetables, the cultivation of Italy includes the mulberry, fig, almond, carrubo, and orange trees; also tobacco, rice, cotton, and licorice, together with grape-vines and olives. The cultivation of the grape is universal; and much wine is made, principally for home-consumption, as the Italian wines do not, I believe, bear transportation well: some of them are very pleasant, when they can be obtained pure; but there is a good deal of adulteration. The olive seems to thrive on dry, stony soils; and it is very common to see the sides of steep mountains thrown into terraces, and planted with this tree. The oil from trees grown on the hills is said to be better, though less in quantity, than from those grown on richer land. The carrubo-tree produces seeds used as

feed for horses. Figs and oranges are grown largely, as is also the almond. In the southern part of the country, in Calabria, a considerable quantity of cotton is cultivated, also licorice, that is said to be highly remunerative. Cultivation seems to be thorough, and judiciously conducted: where required, on the hills, a proper rotation of crops is carefully attended to. The implements of agriculture are in appearance rude and uncouth, although they may answer their purposes. The ploughs seem especially faulty; the share often being simply a piece of timber sharpened to a point, and shod with iron. Another instrument of which much use is made is a very heavy hoe, in shape resembling the blade of a spade. Much of the land is cultivated by hand, — a long-handled, pointed shovel being used; and this mode of tilling seems adapted to the light, rich, volcanic soils of Southern Italy. Wheat is sown in rows, or drills, and in the spring is carefully weeded: large numbers of men and women may be frequently seen so engaged. Horses, oxen, cows, donkeys, and mules are all used as beasts of burden, sometimes separately, sometimes together. An ox harnessed to a cart in the shafts, with a donkey on one side and a horse on the other, is a not unusual sight; and teams of buffaloes are not uncommon. The cattle are large, of a gray color, with very large, spreading horns, very picturesque in appearance, and handsome to the uninstructed eye: whether their points would equally suit that of the grazier or not, I cannot say.

The flora of Italy is very rich, and the wild flowers numerous and in great variety. It seems to me, that, under the bright sun of this favored land, their color takes a deeper hue and brighter tints than elsewhere. Many species, that with us are grown only in greenhouses, here flourish in wild luxuriance: such, for instance, as the cyclamen, that may be seen in the spring enlivening the grass with patches of its bright crimson flowers; and camellias, that are as common as roses with us.

All the hardy fruits are cultivated; apricots very good, a speciality, as it were, of Naples; cherries; and peaches of two sorts, — one early, large, and very good; the other late, suitable for preserving. I cannot, however, speak of these from my own observation, as I have never been in Italy in their season. In winter, the market is well supplied with grapes, apples, pears, and oranges. Grapes, both the white and purple varieties, are very good (one of them, a white grape resembling the Malaga, may be kept until spring). Apples are of half a dozen sorts; and those of which I have tasted were of good flavor, with a tender flesh, but rather deficient in juice. Of winter pears, I have seen but one variety; but this one supplies the place of numerous sorts with us, and, as I think, the most valuable variety of any with which I am acquainted. It is a good-sized, handsome pear, tender, very juicy, of a very pleasant flavor; does not shrivel or decay; keeps all winter, and is in eating from December until April or May, seeming to ripen in succession. This pear seems to be cultivated universally all over Italy. The only name by which it is known, so far as I can learn, is the Spina, or Thorn Pear. Whether it is to be found in American collections or not, I cannot say: I suspect not. If it is, I think it must be unsuited to that climate, and cannot there attain perfection. Oranges, especially about Naples, are very fine. Sorrento oranges are celebrated for their excellence.

The agricultural population reside principally in towns: hence but few farm-houses are seen. In the neighborhood of towns, villas, some with extensive grounds, are not unusual. These grounds are usually laid out in the Italian method, with wide, straight avenues bordered with high hedges, having their sides cut straight like a wall; sometimes ornamented with statues, having flights of stairs, with balustrades of marble, but occasionally, in accordance with the natural method, with their walks and drives adapted to the form and inequalities of the ground, so as to display their beauties to the best advantage.

It is, I believe, not unusual to have a lack of energy and industry represented as characteristic of the Italian people. This may be true; but I should not be disposed to admit it, — certainly not to the extent that is sometimes asserted. There is a great amount of labor constantly performed. The land is well and carefully cultivated, and every spot available is made use of: frequently the sides of steep, stony mountains, where there is any soil, is thrown into terraces, and planted with olives, grapes, or oranges. The principal roads are excellent, and well kept; the traffic of the streets is active; and various branches of manufacturing and mechanical industry are diligently pursued, — indications, surely, not of idleness and inactivity.

Italy is a very populous country, and numbers may be seen sauntering about the towns apparently unemployed; but this may arise from other causes than an inherent slothfulness. Where the necessaries of subsistence can be easily procured, the stimulus of necessity to labor soon ceases to operate; and a desire to improve a condition to which they have long been habituated, is, with many, insufficient to induce the practice of continued and uninterrupted industry. Under these circumstances, that in a warm climate many should yield to the seductions of the charms of the *dolce far niente* is hardly a proof of a general tendency to idleness; nor should such be taken as types of the whole nation.

Joseph S. Cabot.

April 26, 1868.

New Hardy Begonias. — We have hosts of begonias familiar as stove-plants. We are not unacquainted with them as inhabitants of the greenhouse or the window-garden. We have acquired some experience with them as ornaments of the summer flower-garden; but, until the fortunate acquisition of these *new* species, no one was sanguine enough to hope to meet with any form of this popular genus taking its rank amongst the hardy subjects — the everybody's plants — of our gardens. And yet we are assured from practical experience that this character will be sustained by one at least of these beautiful novelties, *B. Veitchii* having withstood a winter temperature of 25° Fah. with absolute impunity; while, as *B. rosæflora* comes from an equally elevated habitat, it may fairly be assumed that it will keep rank with its brilliant compeer in respect to endurance of cold.

Both these species are, it will be observed, dwarf herbaceous plants; and even if it should prove, that, whilst enduring the cold, they require some slight protection against the vicissitudes of our variable climate, we must welcome them as amongst the most valuable and important of recent acquisitions, since they

are not only remarkable for the size and beauty of their blossoms, but also for the facility with which they may be cultivated. Both are native of the Andes of Peru, and grow at an elevation of from 12,000 to 12,500 feet.

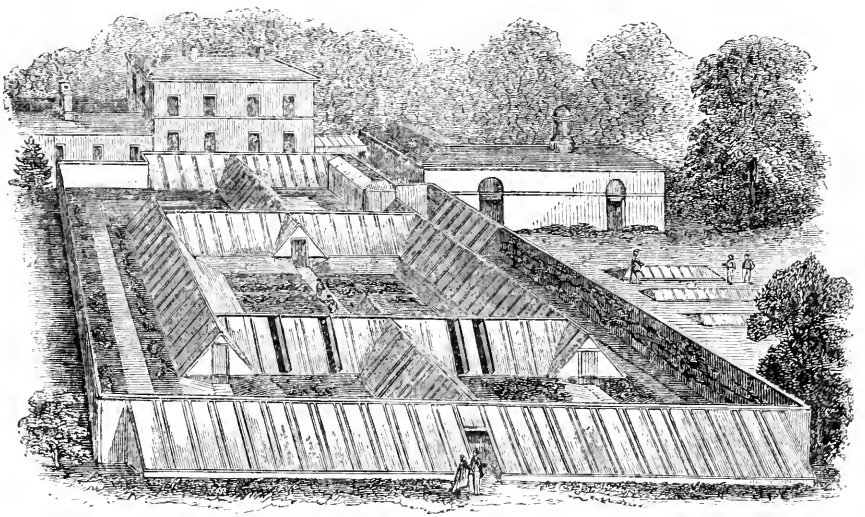
Though presenting a certain amount of similarity in their aspect, the two sorts are abundantly different both as to foliage and flowers. *B. Veitchii* has thick concave leaves of an obliquely ovate or roundish cordate outline, two-flowered scapes eight to ten inches high, and large flowers of a bright cinnibar red color, one being female, and rather smaller than the male. *B. rosæflora* has also thick concave leaves; but they are of a more rounded outline, with much deeper basal lobes, and the veins are so deeply impressed as to render the surface bullate; while the scapes, which are red, like the petioles, are three-flowered; and the large flowers are of a clear rose-color, one of the three being female. They are thus abundantly distinct as decorative plants, and, out of bloom, have more the aspect of some broad-leaved saxifrage, such as *S. ciliata*, than that with which we have hitherto been familiar amongst begonias. There are other technical differences, such as the form of the bracts, which are oblong in *B. Veitchii*, and broader and shorter in *B. rosæflora*: while in the first the wing of the ovary is blunt-pointed, the ovary being smooth; and in the latter it is acutely pointed, the ovary being hairy.

No doubt these very showy novelties will open out a new field, of which the hybridizer will not be slow to avail himself. — *Florist.*

SCHIZOSTYLIS COCCINEA. — I think the value of this plant as a winter flowerer ought to be more generally known. Some plants which flowered here for some months during winter were so much admired, and so many inquiries were made about them and the proper mode of culture, that I conclude the plant is not generally known. Its value, moreover, as a flower to cut for bouquets and other ornamental purposes, is very great; and, the more the expanded flowering-stems are removed from the plant, the faster and stronger do the backward stems advance into flower.

The culture is exceedingly simple, and consists in treating them much in the same way as bedding-plants; that is, to propagate them during the first three months of the year by suckers and division of the roots, potted singly into two or three inch pots, according to strength, and, when well rooted, to be transferred to a cold pit, and gradually hardened off so as to bear exposure to the open air towards the end of May. They should be planted out on a sheltered border in a bed of good compost not too light, and at a maximum distance of eighteen inches apart, kept moderately well watered through the summer, and encouraged to make as free a growth as possible, and then lifted carefully with a good ball of earth early in September, and potted in six or eight inch pots. After keeping them in a close pit for a week or two, they should be transferred to the stage of a greenhouse or conservatory, and they will soon commence to throw up their flower-stems. — *John Cox, in Florist.*

THE PAXTON HOT-HOUSES. — Allusion has been made in this journal to one form of patent hot-house, — that invented by Mr. Beard. We now invite attention to another patented form of structure, for which the gardening world is indebted to the ingenuity of the late Sir Joseph Paxton, and which was contrived by him specially to secure, as it most amply does, the two great desiderata of cheapness and portability. These Paxton houses are manufactured by Messrs. Hereman & Morton ; and both their construction and adaptations are fully explained in a useful little hand-book * of which Mr. Hereman is the author. We cannot do

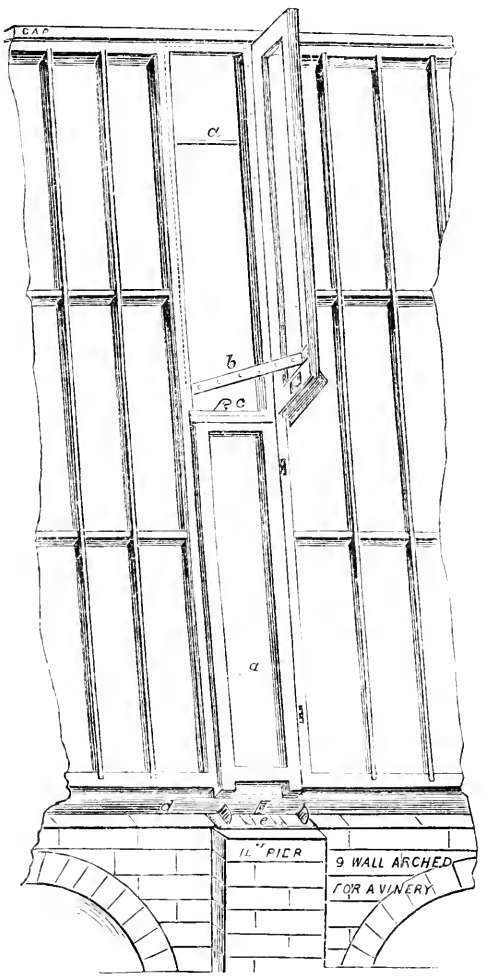


better, in order to give our readers a clear idea of their simplicity, than to quote Mr. Hereman's description : —

" The patent roof is composed of strong sashes from eight to sixteen feet long by about four feet eight inches wide, so connected by iron bars as to leave a space of nine inches between them for ventilation ; which spaces are covered by narrow sashes (divided in halves) hinged to one side, thus forming ventilators alternately with the large sashes, and opening by means of a stay pushed up from the inside, either the upper half separately, or when joined by a catch to the lower half, as one long ventilator. This will be understood on reference to the figure, which represents the upper-half ventilator open to full extent, and the lower half closed ; the iron bar connecting large sashes (*a*) ; the stay (*b*) by which the ventilator can be opened quite wide, or with the smallest aperture on one side only ; and the catch (*c*) for joining the two portions as one. These ventilators may be hinged on the right and left sides alternately for lean-to roofs, to avoid

* A Handbook of Vine and Fruit-tree Cultivation under Glass, with a Description of Sir Joseph Paxton's Hot-Houses. By Samuel Hereman. Third edition. London : 7, Pall Mall, East, and 171, Fleet Street.

the entrance of a direct current of air ; i.e., when the wind is east, opening those to the west, and *vice versâ* : in span-roofs, they are reversed on opposite sides of the house. It will be seen that the side-stiles of sashes are continued four inches as horns to rest in the water-gutter at the foot. The gutter (*d*), of wood or iron, con-



tinues from end to end of the roof, being supported by chairs or saddles (*e*) under ventilators, and at ends set upon piers or walls forming the foundation of the house. The dotted line under the open ventilator shows the course of a groove in the weather-board fitted under the cap, and down the upper edge of large sash stiles to conduct any drip from the ventilator or cap to the water-gutter. The sashes rest against or upon a plate of wood attached to the back wall, to form lean-to

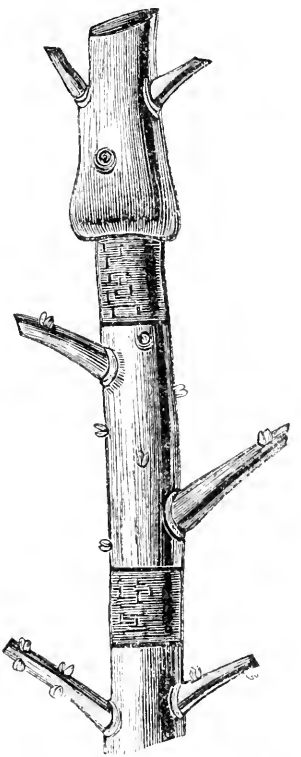
roofs, with the cap completing the work fitted to top of wall, or under its coping. To form span-roofs, the large sashes are coupled together by strong hinges at top, which will allow them to be at any angle, to which the gutters can be arranged, and the ends made suitable to complete the structure. The cap is fixed upon the span-roof in the form of an inverted V."

The sashes, which are made of certain fixed dimensions, with the ends, and the gutters, with their supports, which latter may be either posts or piers, form the whole material for a Paxton house. It is obvious, therefore, that it can be set up and taken down and removed with very little trouble; and this is, in fact, its chief advantage: though, in addition, as there is no high or elaborate finish, though the workmanship is sound and good, the cost is reduced to a minimum.

HABROTHAMNUS ELEGANS. — When well grown, this grand old Mexican plant stands second to none as a decorative plant for the conservatory. It is of vigorous growth, and a profuse bloomer, even in midwinter; which is no mean quality for a plant to possess. It is particularly well adapted for growing as a single specimen, or for covering a wall or pillar in a lofty structure, as well as in one of moderate proportions. When grown on a pillar, it is, perhaps, seen to the greatest advantage. There is one in the conservatory at this place that I planted from a small pot two years since: it is now fifteen feet high and well proportioned, and was covered with bloom from top to bottom from the middle of October onwards. It is growing on a pillar between an *Acacia grandis* of the same height on one side, and a *passiflora* on the other; and its appearance all the winter has been strikingly beautiful. It is planted in a well-drained soil, composed of one-half rather heavy but rich turfy loam, and the remainder leaf-mould and road-drift in equal proportions. It blooms on the last year's growth, and should not be pruned until it has done blooming and the wood is thoroughly ripened: even then, it must be done carefully by spurring the weakest shoots, and shortening others in proportion to their strength; while some may be laid in their full length to increase the size of the plant if required. This mode of treatment will insure a good winter bloom; but, by a judicious pruning and thinning of the branches at different times in the year, the plant can be made almost a perpetual flowerer. It should have abundance of water when growing, and manure-water once a week.

I have found it useful when grown in pots; under which conditions it can be made to flower well twice a year by the assistance of bottom-heat, which it enjoys very much, and by which it is easily excited into growth. Treated in this way, the plant becomes almost deciduous. It is easily propagated from half-ripened shoots inserted in a sandy soil, and placed in bottom-heat; and, after the plants are established, they should be treated as greenhouse evergreen shrubs. A healthy plant will often set a quantity of fruit at the extremities of the shoots: these are of a rich, rosy purple, like the flowers, and remain on the plant a long time, rendering it doubly interesting. — *J. R., in Florist.*

RING-GRAFTING. — Last spring, I obtained a slight success in some experiments I made in grafting rings of bark taken from one sort of tree or shrub, and putting them upon another. The object was to cause the sap to circulate through a channel different to its own, and thus, by inducing a commingling of fluids, to cause it to break out into a fresh growth foreign to either. The idea was original: and finding the operation, as far as regards the bark uniting, to be a practical one, I have thought, that, by explaining the process to the readers of "The Florist," it may lead others to try and find out where a union may be effected;



for trees and shrubs widely differing in character and species can be made to unite, and possibly some good cross, or sport, may be the result.

Mr. Scott has recently stated that he saw the lilac (*Syringa vulgaris*) growing upon the ash (*Fraxinus excelsior*) in the Jardin des Plantes at Paris. I have tried the same union by ingrafting, and had the plant growing for two or three years; but it ultimately died off. This union suggested to me the idea of trying experiments by ring-grafting. Accordingly, in the month of April, or, as a rule, as soon as the sap was found to be freely circulating in the different sorts to be operated upon, I selected branches of the different kinds to be tried. I made two horizontal cuts at one and a half inch apart through the bark, and a

longitudinal one between them. The bark was then carefully taken off by raising it with the handle of a budding-knife. A branch of corresponding size on the tree on which it was to be inserted was chosen, and a piece of similar size taken off, so that the grafted portion might fit in as exactly as possible. The ring of bark was then gently opened, and slipped over the branch into its place. A little matting was tied lightly over to keep it secure; and a covering of clay, the same as in ordinary grafting, completed the operation.

The following are some of the sorts experimented upon: Pear upon thorn, *Berberis aquifolium* upon common barberry, red currant upon black, red-leaved oak upon evergreen oak, coton-easter upon thorn, *Piptanthus nepalensis* upon laburnum, quince upon thorn, *Cerasus avium* upon *C. lusitanica*, lilac upon ash, and *Cedrus deodara* upon larch. In most of these cases, the barks but partly united; and thus, for the object intended, they were total failures. The last two, however, — lilac on ash, and deodara on larch, — were operated upon with double rings at about seven or eight inches apart: and the union in these is perfect; while the trees are young, healthy, and strong. The larch has fully doubled its girth above the upper ring; while, at the base of its upper junction, it has bulged out considerably, similar to a nectarine or peach when budded on the plum; thus showing that the descending sap is interrupted in its downward passage. The ash is just slightly bulging on the upper side of both rings. It may be some time before any sporting takes place in either case; but such a result may reasonably be expected in due time.

I have thus briefly explained this method of grafting in order to induce others to follow in the same track. It may be as well to observe, that all the ordinary styles of grafting, inarching, or budding, are performed for the sake of giving the scion a suitable stock to grow on; and the elongation of its own parts is just stronger or weaker in proportion to the suitableness of the stock on which it has to grow. — *Florist and Pomologist.*

Early Rose Potato. — Having been engaged this season in growing a small patch of Early Rose potatoes, I thought it would not be out of place to say a few words in regard to its yielding properties. I started this spring with seven potatoes, weighing about four pounds. I undertook as a task to get a return of three barrels, and therefore attended to them well. When the potatoes were ripe, as indicated by the dead vines, I dug from the patch ten bushels.

And this was done in a small garden, very much shaded with trees and grape-vines; showing conclusively, that, in a favored spot, the yield would be almost incredible.

For market-gardeners, this potato would prove very valuable, coming in early, and yielding an immense return. *John Clark.*

Utica, N.Y., Sept. 15, 1868.

The grower of early cabbages will find great profit, in cutting the cabbage-heads, to let a few of the lower leaves remain on the stump, as half a dozen, sometimes more, sometimes less, small heads will shoot up from the stump, and are excellent for pickling. They will vary in size from a base-ball to a cricket-ball, and will be almost as hard.

TENDER CLIMBERS. — The following is a list of plants suitable for the stove and greenhouse respectively; and they are plants which I do not hesitate to recommend. Others there are in great variety, many of which I reject, while of some my experience is not sufficient to recommend their being grown in those places where room only exists for a selection of the best.

1. *Stove Climbers.*	2. *Greenhouse Climbers.*
Allamanda Hendersoni (true).	Clianthus puniceus, or splendens.
Cissus discolor.	Habrothamnus elegans.
Clerodendron splendens and speciosissimum.	Lapagerias (rose and white).
Combretum purpureum.	Mandevilla suaveolens.
Dipladenia amabilis	Passiflora Bellotii.
Ipomœa Leari.	Rhynchospermum jasminoides.
Lygodium scandens.	Solanum jasminiflorum.
Passiflora edulis and quadrangularis.	Tacsonia Van Volxemi.
Stephanotis floribunda.	Tecoma jasminoides splendens.
Stigmaphyllon ciliatum.	Acacia longifolia magnifica.
Thunbergia Harrisii.	Plumbago capensis.

For back walls in stoves, *Ficus repens* (*stipulata*) forms an excellent covering, and is remarkably well adapted where flowering-plants are not in demand. Such are Bougainvilleas, Hoyas, the pseudo-climber Gloriosa, Vanillas, Night-flowered Cereus, Dioscoreas, Echites, and Manettias; are each very beautiful when ably grown; and, if cut-flowers are needed early, few things afford a more abundant supply when planted against the back walls of such houses than do the old single-flowered camellias, or insure, when not in bloom, a more uniform furniture, with their deep-green leaves.

For greenhouses in similar positions, perhaps *Magnolia fuscata* (a much-neglected plant) is unsurpassed in the matter of constancy of garniture and fragrance when in flower. Nor must the lovely Luculias be overlooked. They do well in such positions, together with *Pleroma elegans*, Camellias in variety, Bougainvilleas, Citrus, and Daphnes, which all afford useful variety. In conclusion, I advise all to plant out the climbing Devoniensis Rose in a light, sunny position. If grown well, it cannot fail to afford a good supply of bloom in succession, and to amply repay with its delicate and delightful fragrance the trouble and attention expended on its behalf.

ALPINE STRAWBERRIES FOR TABLE-DECORATION. — Berry-bearing plants have been very much sought after of late years for table-decoration; and, in our anxiety to procure novelties, we may perhaps sometimes have overlooked really useful materials already in our possession. I think this may be truly said with regard to the Alpine Strawberry; for what can be more interesting and pretty for the table, during December and the two following months, than a few pots of these, nicely fruited, placed in vases or otherwise, according to the taste of the decorator? For this purpose, I select in May or June nice little plants of last year's runners, and plant them in seventy-twos: I then plunge them in an open border exposed to the sun, but never allow them to suffer for want of water. They have an occasional watering with liquid-manure. The flowers are cut off as they appear until it is thought necessary to allow them to fruit. They are transferred to the fruiting-pots (forty-eights) in August, and placed with the general stock for forcing. The Alpine forces better than any other strawberry we have, requiring but little heat to bring it into fruit. An early vinery just started is a capital place for it. — *W. Robins, in Florist and Pomologist.*

EUCHARIS AMAZONICA. — To have the beautiful pure white flowers of eucharis during the whole of the winter months, when flowers are scarcest, is a great advantage, more especially as they last fresh and beautiful for a long time after being cut. The following is the mode of treatment I adopt, and by which I have them plentifully at that season : The plants are looked over and repotted at intervals during March, April, and May ; the soil used being one-half good fibry loam, one-fourth fibry peat, and one-fourth well-decayed manure and leaf-mould, with a free admixture of silver sand. The pots are provided with good drainage, as, during the time of growth, the plants require abundance of water : and, to allow the superfluous water to run off freely, a layer of half-decayed manure is placed over the bottom drainage. When repotted, they are placed in a temperature ranging from 70° to 85° by sun-heat, and are kept near the glass, being shaded at first until they begin to grow, after which they have all the light and sun possible. This is of the greatest importance. They should not be placed in plant-stoves which are kept shaded in sunny weather. The syringe is freely applied both morning and afternoon, and, in the middle of the growing season, at closing time also, that they may have the benefit of a nice humid atmosphere the night through. The plants at this time are never allowed to become dry, being watered two or three times a day in hot weather, and twice a week with manure-water made from sheep-dung with a little soot.

With this treatment the plants grow vigorously, and have that fine, rich, deep-green appearance which is the best sign of vigorous health. By September and October, when the bulbs have finished their growth, they are removed at intervals of three weeks, to secure a succession of bloom from November to March, to a cooler house, in which they are placed near the glass in the dryest part of the house ; and water is gradually withheld from them, barely enough being given to keep the leaves from shrivelling. In a short time, they throw up their flower-spikes, and bloom freely all through the winter months. — *William Whitaker, in Florist.*

ON VINE-PRUNING. — I strongly recommend those who have hitherto pruned their vines on the close system to try the extension one. Let them prune to a good eye, instead of cutting every visible eye away, and I am sure they will soon see the advantage of adopting this method. I think it a practical anomaly, that a quick-growing and long-lived plant like the grape-vine should not be allowed to extend itself except in the first few years after planting. Long before the vines get into their teens, they are restricted to about the same quantity of leaves every season ; and, consequently, there is no impetus given to the roots to extend themselves much : but let the top extend yearly, and the roots will do so likewise, and enjoy their fresh food much better than taking the old dose over again. I believe many vineries have been ruined because the roots have not had the power to push onward. A vinery might be made much more productive as well as ornamental, and it would be more in conformity with the habit of the plant, if the vines were festooned, and trained wherever they could get proper light. As this cannot be easily accomplished in lean-to houses, I train them after the fan fashion, and do not dress them up like hop-poles. — *M. Henderson, in Pomologist*

FUCHSIAS: THEIR CULTURE. — Who that loves flowers does not admire a fuchsia? Their almost countless flowers, so gracefully drooping from their pendent branches, have a very pleasing and attractive effect. The fuchsias, like the majority of our florist-flowers, have undergone many changes, both in size and color of the flower, within the past quarter of a century. The first great improvement we can recollect was the introduction of *F. globosa* and *F. Venus victrix*. The former was a most profuse bloomer, and of medium habit in regard to height, being short-jointed and very bushy. It was an almost universal favorite with the cultivator of the fuchsia; and although for some time it can only be reckoned among the plants of the past, — so far is it forgotten, — yet I believe it is to be found in many parts of England, growing either in the cottager's garden, or adorning his window. Of the latter variety, it may be ranked among the first of the light sorts. Like its companion *globosa*, it was a most profuse bloomer; but it did not partake of the robust character of the former. Since that period, the improvement among the fuchsias has been going on so rapidly, that it is almost difficult to make choice of a selection, so good are the varieties which are being annually introduced. But, for beginners in the cultivation of this favorite flower, I would here offer a word of advice as to the selecting of the sorts most suitable for their purpose. Until you are thorough master of the detail of their culture, never select double-flowering varieties, but be content to begin with the single sorts: the latter are in general the most abundant bloomers, and their growth is less rampant. There are exceptions to the rule; for instance, Queen of Whites, with scarlet sepal and double white corolla, may be considered a gem in its way, its habit being dwarf and compact, and a very free bloomer. Now, the single-flowered varieties with white corolla, as Alexandrina, although very fast growers, yet flower very profusely, which makes them exceedingly interesting in a collection.

What kind of form or habit should constitute a good fuchsia? This is a question that has to deal with taste to some extent; for what one person admires another may not. But, among florists, a pyramid shape is regarded as the correct form of growth (and that is decidedly the natural inclination of a majority of fuchsias); that the lower branches do so spread as to occupy the greater space: and this should be so accomplished, that a portion of the shoots should hang over the pot, and thus the foliage would partially conceal its naked part, so that the branches would from thence to the apex of the plant gradually diminish in circumference. Thus but one stake would be required for the main stem. In tying, be careful that you do not draw your bass too tight, but allow it to be somewhat loose for the swelling of the wood as it grows. I have, for want of attention to this little matter, had it almost sever the wood, — a serious affair when your plant is progressing.

If you find that the side-shoots cannot well support themselves, then suspend them by the aid of ties fastened to the centre stake. If that is not sufficient to sustain their weight, then use as few stakes as possible; giving them a slanting direction from the plant, so as to preserve the true pyramid shape: they can be so managed that their presence may be hidden by the foliage. These instruc-

tions apply to those who are desirous of obtaining a well-grown plant with a proportion of bloom corresponding to their size.

July is the best period for commencing their propagation, especially for such plants as you are anxious to flower early in the ensuing year. As soon as they are rooted, pot them into small pots singly; grow them on as fast as you can without weakening their wood: endeavor to keep the wood short-jointed; and do not stop the leading shoots, only the side-branches, commencing with the lower ones first. Do not allow them to bloom in autumn. As soon as you find they have no longer a disposition to grow, and that the wood is getting hard and ripe, gradually withhold the supply of water; after which, for the winter, they may be stored away under the stage of the greenhouse. If you have the convenience of an early force-vinery, you may commence to grow them as soon as you begin to force the vines. Use the syringe freely; but they must be removed from there as soon as the foliage becomes thick, as then it will be too shady for them, although they must have shade during bright sunny days. In potting them, do not give them too great a shift at one time. If you have any warm plunging materials for their pots, so much the better, as it will increase their root-action.

When they have done flowering, they may be stood out of doors in a sheltered position. With a little care they will commence growing again, and thus give you a second crop of flowers, perhaps more abundant than the first, as the wood will be more sturdy and robust. The fuchsia will thrive in a soil, half turfy loam; that is, the top spit of a pasture which has been gathered into a heap for at least twelve months. This and a fourth of fibry peat, the remainder being decayed manure and silver sand well incorporated, adding plenty of drainage.

The fuchsia requires to be watered with care. If the soil is allowed to become saturated, the flowers are sure to drop prematurely; that is, before they expand. On the other hand, the evil will be the same if suffering from drought. Other minor details connected with their culture will be unfolded to you by observation as you delight in their cultivation.

The following are among the best grown; viz.: —

Name.	Color.
Arabella	Pure white, rose corolla.
Catharine Parr	White, corolla red.
Alexandrina	Red, white corolla.
Harry George	Scarlet, corolla plum-color, very fine.
Lady Dumbello . . .	Carmine, lavender-blue corolla.
Conquest	Brigth scarlet, corolla rich dark violet, free bloomer.

Country Life.

MR. E. H. SKINNER of Marengo, Ill., has been very successful in raising pear-trees from root-grafts. He has raised several thousands which have made a fine growth, with the loss of but very few, although some of them had been sent to New Jersey and back before planting. Mr. Skinner says the secret of his success lies in the fact, that, when grafting, he does not allow many scions and roots to be cut at a time: by so doing, the point of junction does not become dry; and they will grow as readily as apple-grafts. *C. C. M.*

GRAFTING OLD GRAPE-VINES. — The question is often asked, whether old grape-vines cannot be grafted over with some of the new and important sorts. Our answer is, They can. We much prefer planting young roots of the kinds we want; but old vines can be regrafted.

We have performed the operation several times, though not always with success. Our failures have arisen from such causes as these: 1. Trying to graft such heavy-grained, rank growers as the Diana and Concord on such fine-grained sorts as the Clinton. 2. Allowing the graft to be exposed to the sun and wind after the operation has been performed. 3. Permitting suckers to shoot up in excess around the base of the stock. Let experimenters bear these things in mind, and then go ahead.

The work may be done early in the spring, or in June and early July. The latter period is preferable, because then the first rush of the crude sap is over, and it has become thicker, and better fitted to form granulations around the scion. The scion forms a callus better, and little bleeding of the stump will occur. The scions, having been kept dormant till this time in a cool cellar, are now to be prepared for insertion. Remove the soil several inches deep around the roots of the old vine, and saw off the stock just below the surface of the ground. If the stock is more than an inch in diameter, two scions may be inserted, according to the usual cleft mode. Of course, much care should be taken in fitting the parts of scion and stock together. Leave only one bud on each scion. Tie up the stock firmly with bass-matting to prevent the parts from springing open afterwards. It will not usually be needful to cover with grafting-wax. Draw the earth back around the stump, and shade the same partially for a month or two. If suckers appear, keep down all but one, which will serve to draw sap up into the stock, and help to form granulation. When the scion has grown a foot or more, it should be carefully tied up to a stake to prevent its breaking off by the wind. In the course of a year, roots will probably push out at the base of the scion; but, if they do not, the new cane should be layered, and thus an entirely new vine will be secured. — *Rural American.*

[It is hardly possible to exaggerate the importance which grafting the vine possesses in the eyes of an amateur or experimenter. We have seen growths so prodigious and incredible made by single eyes grafted into vigorous native stocks, that we regret that failure rather than success should be the rule. An amateur who has only one bud of a new variety, and who succeeds in making it take on a native stock, will get a splendid cane the first season, and almost always some fruit the second; while, on the other hand, if he started the bud in a hot-bed or propagating-house, he would get only a small vine at best, and, as likely as not, no fruit until the third or fourth year.

If grape-vines could be grafted as easily as apple-trees, we think it would be perfectly feasible to raise grape-stocks in nursery-rows, and graft them when two years old with slender and slow-growing kinds like the Delaware, and thus attain excellent results. We have budded the vine with some success; but our attempts at grafting have generally failed. — *Ed.*]

GRAPE-GROWERS' ASSOCIATION OF NEW YORK. — This association held its first annual exhibition at Canandaigua, N.Y., on the 7th and 8th of October.

The occasion called together the most prominent grape-growers and amateurs of the State, as well as many from other parts of the country. Among them we noticed Mr. M. P. Wilder of Massachusetts, Dr. Warder of Ohio, William Griffith of Pennsylvania, Charles Downing, Dr. C. W. Grant, A. S. Fuller, P. Barry, Dr. Farley, Judge Larrowe, Dr. Randall, Mr. Rose, C. L. Hoag, F. L. Perry, of New York, and many others whose names we have not space to give.

The display of grapes was probably the best ever made in this country ; and the association may justly feel proud of this their first attempt to show what can be done in producing grapes and wine in America.

At the close of the first day's exhibition, the society held a meeting in the town hall for general discussion, where members gave their experience in cultivation, and made known their estimate of the value of different varieties.

The exhibition closed with an address by Dr. C. W. Grant of New York.

Among the exhibiters were those whose names are comprised in the following list : —

Pleasant-Valley Wine Company, Hammondsport, N.Y. — Catawba, Clinton, Creveling, Delaware, Isabella, Diana, Iona, Concord, Hartford Prolific, Alvey, Rebecca, Israella, Muscadine Crystal, Norton's Virginia, Oporto, Cape, Charter Oak, Flitchwire, Taylor's Bullitt, To Kalon, Scuppernong.

Ellwanger & Barry, Rochester, N.Y. — Lenoir, Elizabeth, Delaware, Logan, Garriguese, Marion, Lincoln, Clinton, To Kalon, Hartford Prolific, Creveling, Norton's Virginia, Venanges, Stright's, Isabella, Adirondac, Taylor's Bullitt, Union Village, No. 50 Alvey, Strawberry, Dracut Amber, Iona, Catawba, Cassady, Diana, Concord, N. Muscadine, Canby's August, Perkins, Cuyahoga, Lydia, Mottled, Franklin, Rebecca, Rogers's Hybrids Nos. 2, 3, 4, 5, 9, 14, 15, 28, 30, 33, 36, 42, 43. 44.

C. L. Hoag & Co., Lockport. — Israella, Iona, Allen's Hybrid, Hartford Prolific, Perkins, Diana, Norton's Virginia, Union Village, Delaware, Montgomery, Miles, Logan, To Kalon, Creveling, Concord, Cassady, Adirondac, Rebecca, Rogers's Hybrids Nos. 1, 4, 15, 19, 30.

Ryckman, Day, & Co., Brockton. — Concord, Catawba, Delaware, Iona, Clinton, Diana, Isabella.

T. L. Harris, Salem-on-Erie. — Salem.

R. B. Shaw, Canandaigua. — Perkins, Maxatawny, Lydia, To Kalon, Hartford Prolific, Union Village, Adirondac, Iona, Catawba, Israella, Rogers's Hybrids Nos. 1, 4, 5, 9, 15, 19, 33, 44, Anna, Diana, Rebecca, Violet, Chasselas, Delaware, Creveling, Isabella, Alva, Cuyahoga, Logan, Louisa, Garriguese, Golden Clinton, Dracut Amber, Concord, Muscadine.

A. J. Byington, Naples, N.Y. — Iona, Catawba, Delaware, Isabella, Rogers's No. 19.

S. L. Deyo, Naples. — Clinton, Catawba, Rogers's No. 19, Delaware, Iona, Isabella.

Jacob Moore, Rochester. — Diana Hamburg.

Ayres & Cobb, Vine Valley. — Isabella, Catawba.

A. Bassett, Vine Valley. — Clinton, Isabella.

H. Green, Vine Valley. — Catawba.

Vine-Valley Grape Company. — Catawba.

Nichols, Seelye, & Co., Vine Valley. — Iona, Catawba, Delaware, Isabella.

A. C. Younglove, Canandaigua. — Iona, Catawba, Diana, Isabella.

Dr. E. Ware Sylvester, Lyons. — Union Village, To Kalon, Perkins, Adirondac, Oporto, Iona, Elsinburg, Hartford Prolific, Delaware, Diana, Anna.

J. W. Wolverton, Canandaigua. — Rebecca, Diana.

F. L. Perry, Canandaigua. — Rogers's Nos. 2, 3, 7, 9, 15, 19, 28, 43, 44.

T. W. Seamans, Naples. — Diana, Iona, Catawba.

E. B. Pottle, Naples. — Rebecca, Catawba, Diana, Concord, Creveling, Isabella, Adirondac.

Harlow & Hinckley, Naples. — Isabella.

William M. Oehlman, Naples. — Catawba, Isabella.

J. W. Clark, Naples. — Catawba, Rebecca, Delaware, Isabella, Diana, Concord, Creveling, Clinton, Iona, Lenoir, Hartford Prolific, Rogers's Nos. 4, 9, 19.

Dr. H. H. Farley, Union Springs. — Louisa, Diana, Iona, Cuyahoga, Clinton, Isabella, Delaware, Rebecca, Catawba, Adirondac, Israella, Rogers's No. 4.

Ferris & Caywood, Poughkeepsie. — Walter.

Alexander Palmer, Modena, N.Y. — Concord.

Dr. F. W. Perrine, Dansville. — New Seedling.

D. Backman, West Dresden. — Catawba.

J. Larrowe, Hammondsport. — Catawba, Diana, Isabella.

F. Ingersoll, Phelps. — Iona, Delaware, Israella, Diana.

Urbana Wine Company, Hammondsport. — Concord, Isabella, Catawba, Diana, Delaware.

Elihu Morse, Canandaigua. — Diana, Catawba, Delaware.

L. J. Sutherland, Canandaigua. — Catawba, Isabella, Diana.

E. G. Lapham, Canandaigua. — A fine display of in-door grapes.

J. J. Mead, Benton. — Concord, Diana, Iona.

W. H. Shearland, Penn Yan. — Catawba, Iona, Israella, Adirondac.

A. P. Randall, Penn Yan. — Union Village, Iona, Alexandra, To Kalon, Catawba, Israella, Lisbon Wine Grape, St. Geneva, Allen's Hybrid, Lydia, Rogers's Nos. 4, 15, 44, Pauline, Clinton, Cassady, Secord's White, Maxatawny, Diana.

J. S. Gillett, Penn Yan. — Catawba, Iona, Israella, Adirondac.

J. W. Bailey, Plattsburg. — Adirondac.

W. C. Buell, Troy. — Alexandra, White Riessling.

A. Rose, Penn Yan. — Rogers's Nos. 15, 19, Diana, Delaware, Keuka, Concord, Allen's Hybrid, Iona, Seneca.

A. Dunlap, Starkey. — New Seedling.

John Neff, Pultney. — Catawba.

R. F. Stewart, Pultney. — Crooked Lake.

D. S. Wagener, Pultney. — Iona, Israella.

William Griffith, North East, Penn. — Israella.

Barney & Carlin, Sandusky, O. — Loraine, White, Diana.

Charles Arnold, Paris, Canada. — Arnold's Hybrids Nos. 1, 2, 5, 8, 16.

J. Ringueberg, Lockport, N.Y. — Clinton, Diana.

We should be glad to give a complete list of all who exhibited; but the attentions shown to our correspondent while on the grounds prevented us from doing justice to all.

We would suggest to our New-York friends, that, in future exhibitions, they shall fix an hour after which entries for premiums cannot be made; and that it would be well for the committees to make their decision before the public have time to enter and mutilate the clusters.

It will be seen by the above list that the Iona Grape was in nearly every collection.

The following is an account of the evening discussion: —

Grape Discussions at Canandaigua, N.Y. — A large meeting convened in the evening, and was called to order by the president, Hon. E. B. Pottle, who proposed that gentlemen present make reports of the condition of the grape-crop in their several localities before entering upon the discussion of the topics prepared for the regular programme.

Mr. M. P. Wilder of Massachusetts was first called on. In his usual happy vein, this gentleman congratulated the society upon the success which had attended their efforts, and pronounced this the finest exhibition of grapes ever seen upon this continent. In reporting for Massachusetts, he could only speak of failure, which he accounted for by referring to the unusual quantity of rain-fall, that was stated to have been thirteen and a half inches in place of the average of three and a half in the same period.

John A. Warder reported for Southern Ohio, that their old favorite, the Catawba, had proved very unsatisfactory in its crops for several years. The Concord and Hartford were successful: but the Norton and the Ives were the favorites with most planters; and the latter was spoken of as very successful in that region, because of its sterling qualities of perfect health, thrift, and productiveness, which put the Ives in the first rank as a vineyard-grape.

William Griffith of North East, Penn., stated, that, so far as he had observed, the whole Lake-shore region, from Cleveland eastward to Cattaraugus Creek, was successful this year.

Mr. T. L. Harris, from Salem-on-Erie, Chautauqua County, N.Y., had found no mildew nor other disease upon the vines of that region, which were very productive and successful. This he attributed to the influence of the lake, and a range of hills to the southward, among which was imbosomed the Chautauqua, seven hundred feet higher than Lake Erie. This favored region extended about two miles by seven; and he was sure that the spirit of the vine presided over that spot. Some insects had made their appearance upon the foliage, but nothing serious.

Mr. A. S. Fuller of New York answered for that region and the neighboring portions of New Jersey. The crop of this year was not very promising. In view of the great success that had attended grape-planting in certain regions, he recommended the selection of these favored localities.

Hon. J. Larrowe of Hammondsport, N.Y., stated, that after fifteen years' experience, chiefly with the Catawba, they still found it successful, and that it

ripened well. During this season the thrips (*Tettigonia vitis*) had been very troublesome, and a sudden change of temperature had produced some mildew; but this was easily checked by the sulphur and lime solution. This is prepared by slaking twenty-four pounds of lime with one pound of sulphur, using hot water, and then reducing this with three barrels of water, to be applied with a syringe.

He prefers the slopes near the lake for the Catawba, sheltered by a higher background.

Mr. Roberts, after a residence of three years in North Carolina, said that grapes generally do well there, particularly Concord, Hartford, and Catawba. He referred to the famous Scuppernong, which is so much admired in that State, and to the specimens on exhibition. It was asked how the wine was made, and whether or not sugar and whiskey were always added to the juice; to which Mr. Roberts responded, that both were used. In answer to a query, Dr. Van Keuren stated that the must of the Scuppernong grapes sent to him from Enfield, N.C., did not weigh more than 1.0030 by the wine-scale; which shows a very small proportion of the saccharine principle.

The president then called the order for discussion; the first item being soils, and their preparation for planting. Mr. Fuller thought this a question which could not be settled for all parts of the country; since the soils were so different, that what might be suitable in one place would not be practical in another.

A. J. Caywood of Poughkeepsie advised the deep ploughing of a piece of sward six weeks before planting. This decaying vegetable matter he thought equal to twenty-five dollars' worth of manure.

Mr. Griffith thought that almost any soil which was not wet would answer for a vineyard. He would also avoid a hungry sand. The land should be porous: if not sufficiently so, it should be made loose by drainage and cultivation.

Mr. Underhill of Brockton, N.Y., had a soil very different from the shingly gravels and loams of North East. His was a sandy loam, lying between the lake and the range of Chautauqua hills. On this land, grapes do well; so they do on the hillsides, up to a certain height (five hundred feet), the soil being clayey, with many stones: upon this the vines yield well, ripen early, and the grapes contain more saccharine matter than those grown on the plain below.

Mr. Hoag of Lockport, on low lands, presented a very good report of his success on that soil with a great variety of grapes: indeed, his beautiful and extensive display upon the tables spoke volumes for the adaptability of his land to grape-growing.

Dr. F. M. Perrine of Dansville made some interesting remarks respecting the soils of that region and the growth of the vines.

Mr. Keech of Waterloo thought his land might be too rich; but the early varieties have done well this year, which has been very dry. His Ionas were ripe on the 10th of September. He had seen some thrips; but they were late, and did little damage.

Mr. Younglove, on the slopes of the lake, on a sandy loam, good wheat land, had found grapes do well and ripen early. They retained their foliage perfectly.

The next order being called up, — pruning, and the season in which it should be done, —

Judge Larrowe premised by saying that this was a matter in which we should be guided by common sense. He would prune close in the winter to prevent over-production : a small crop is always better than a large one. He allowed his Catawbas to carry ten pounds : five would be better. In summer, he preferred to let the vines alone ; but, if they got above the stakes or trellis, they might be cut off. He preferred pruning in the fall rather than in winter or spring.

The president thought that no absolute rule could be laid down which would be applicable to every vine in any vineyard. There were different habits of growth in the several varieties, and different conditions of strength and vigor in the several plants. He had seen seventy to eighty pounds of grapes upon a single vine : he had harvested from sixty to seventy pounds in his own vineyard. He thought that some vines should be set at wider distances on rich land, ten or twelve feet apart ; and some kinds even sixteen or eighteen feet. He did not advise manuring.

Mr. Griffith made some excellent remarks upon pruning, in which he showed that the amount of cutting should bear a direct relation to the space of ground occupied by each vine. He would prune also according to the variety of grape, and the soil in which it had been planted. He objected to the severe summer-pruning practised by some vignerons ; pleading the necessity of leaving the foliage to effect its peculiar functions, particularly in regard to the ripening of the fruit. He thinks, that, for most varieties, six feet space is sufficient. (Thirty-six ?)

Judge Larrowe coincided, but would select the soils for the vines, and also plant wider or closer upon the same principle, using poor land and wider spaces for the most vigorous sorts.

The discussion upon this very important subject was exceedingly interesting, and might have been extended with great profit to the assembly of practical grape-growers, but was prevented by the lateness of the hour.

Second Evening. — The meeting was opened by the president reading the list of awards made by the several committees during the day. The secretary then read a very interesting address prepared by the veteran vine-grower, Dr. Grant of Iona Island in the Hudson. The subject was the successive advances in grape-culture in the United States, which were ranged in three stages, — those of the original natives ; of the introduction of the Israella and Catawba ; and lastly by that of the Delaware, and of the Iona and Isabella, his own productions. The writer made a very strong case in favor of his pets, and was less complimentary in regard to some other candidates for the public favor. Of the Hartford, he said that it was " Nature's most successful effort at improvement." The thanks of the association were voted to Dr. Grant for the preparation of the annual address ; but, as there was manifest dissent from some of its positions, this deserved compliment was not understood to commit the members as indorsing them.

Discussion of the paper was passed by calling the order, " Varieties, and their

adaptation to soils;" when several speakers occupied the attention of the meeting, giving their views upon the several sorts under cultivation.

Mr. Gedge of Vineland, N.J., reported a good crop of Concord and Hartford, which were productive, healthy, and profitable; but stated that the Delaware, Iona, Israella, and others, failed in their locality.

Mr. Underhill thought that the Iona would prove to be a good wine-grape; and, as many vines are fruiting this year, we may hope for a satisfactory test. The Rogers's Hybrids will rank high for the table (market?) on account of their showy appearance. Israella will soon supplant the Isabella.

The discussions closed without taking up the other orders prepared by the committee, and the meeting adjourned *sine die*.

ADDRESS OF DR. GRANT. — We regret that we cannot give Dr. Grant's exceedingly valuable address in full. As it is, we are obliged to content ourselves with a *résumé*.

The doctor divided the history of American grapes into three periods, — the first distinguished as the original condition, and the two others marked by important ameliorations.

The varieties of wild grapes at the North are endless: but, of whatever color or appearance, all are marked by the same characteristics; viz., thick, acrid skins, and a very large central portion that always remains fibrous, unripe, tough, and unpleasantly acid. Surrounding this centre is a varying proportion of juice, that has some fruity qualities, but not any of striking goodness.

A mild and comprehensive descriptive term for all these is "coarse, feeble, and impure in flavor." Describing them by a formula, we say, —

Skin. — Thick, acrid, and offensive.

Flesh. — Coarse, generally fibrous, and never ripening to the centre.

Quality. — Moderately sugary, never vinous, rich, or refined, and without any refreshing property.

To this class belong the Sage, Charter Oak, Perkins, Northern Muscadine, and a host of others; the Hartford Prolific, Nature's most successful unaided effort to improve the Fox family, being the best of the lot. The Scuppernong, belonging to the southern branch of the family of wild grapes, is feeble, lacking in all wine-making qualities, and impure in flavor.

The second period of American grape-history is marked by the introduction of the Isabella and Catawba varieties.

The Isabella was so much better than the wild grapes of the woods, that it gave a decided impetus to grape-culture, although by no means free from positive defects. Its juice, under favorable conditions, becomes sugary, and somewhat vinous. The central portion of the flesh, although sometimes tender, is never sweet and rich; and the whole grape, in eating, is wanting in animation, and marked not only by feebleness of flavor, but often by a strong savor of native impurity.

The Catawba was better, and had more vinous and animating power. It has also some degree of every one of the native defects. It has foxy impurity, acridity of skin, and an unripe, acid centre.

As a wine-grape, it is about as defective as a grape for eating; and the defects

in the wine cannot be so well tolerated as those in the fruit, although many think they can be more easily remedied. Still, with all their faults, these two varieties gave grape-culture in this country an immense impetus.

The third period is noted by the introduction of the Delaware.

That a native grape had been found equal to the best foreign kinds in quality, and strictly like them in character, was a startling announcement, and, in the opinion of many, too good to be true. Still, the statement was not false; and, to bring the condition of the case in relation to the quality of grapes existing at that epoch, it is necessary to examine critically the leading foreign kinds in order to show how nearly the Delaware is qualified to take their place.

Grapes of the *vitis vinifera* class are all of them in strong contrast to the native kinds we have just considered. They are marked by purity of flavor, and perfect ripening from circumference to centre. Their first impression on the palate is agreeable, and the after-taste pure, pleasant, and healthful.

Some are negatively faultless, being merely sugary and pure, without vinous animation or refreshing quality.

As we rise in quality above the Chasselas, we find the foreign kinds possessed of qualities that constitute refined richness, vinous spirit, and supporting power, rendering the grape the most refreshing of fruits.

These qualities belong to the Delaware in a high degree; and it was, therefore, sent forth as an educator of the American taste.

Let us glance briefly at two or three foreign kinds.

The Schiras Grape, that produces the Red Hermitage wine, has a tender, meaty structure of flesh from centre to circumference. It is pure, sugary, rich, and vinous, with a delicate perfume.

The Carbenet Grape, that gives the Medoc wines, has the same characteristics; viz., perfect ripening and abundant juice, rich in all high qualities.

In the Sauvignon Gris, eminent for white wine and the table, the same traits prevail.

Compare with these the Delaware.

The skin of the Delaware is thin, fine, and strong; never acrid; but, on the contrary, has a slight delicate perfume. The grape is sugary, with a full, rich flavor, and much vinous spirit. It begins to ripen at the surface; and, under favorable circumstances, the ripening process *nearly* reaches the centre. In its best condition (not always; for some care and skill is required to reach this goal), it may be called a perfect grape.

It has been said that we cannot speak of the Delaware without using superlatives: and I shall probably be charged with a too free use of superlatives in my account of a grape that followed close upon the Delaware, and possessed a much stronger revolutionary character; I mean the Iona. Still, all I can say is feeble indeed compared with the silent utterances of this exhibition.

I must therefore say that the Iona equals the Delaware in purity and refinement, and excels it in certain other characteristics. It ripens perfectly at the centre, and as soon at the centre as at any other part. In sugar it is richer than the Delaware, but to the palate apparently less saccharine; its aromatic qualities preventing any cloying effect. The flesh is uniform all through, and has the ten-

der, *meaty* structure unknown among our native kinds. It does not fall to juice on breaking the skin; yet the *whole* interior, except the small seeds, goes to juice on the slight pressure of the tongue. Its structure is *meaty;* wholly distinct from, and the opposite of, fibrous. The skin of the berries is thin and strong, and the bunches handsome and compact, but not compact enough to prevent the fruit from maturing.

Grapes for wine must be high flavored and rich. Neither saccharometer and acidometer, nor the most minute analysis, give any account of those subtile qualities, without which the most valuable traits of good wine cannot exist. The excellence of the wine must pre-exist in the grape.

Now, if our preliminary study has been trustworthy, we can go rapidly through the whole list before the public, and make a proximate estimate of the value of each.

The Catawba is the head of a family. Its juice is sweet and vinous; and, when it ripens, it is a favorite where no better kinds are known. Yet its defects are apparent. Its skin is acrid, and its centre tough and unripe. From such kinds as this has arisen what may called the *American* method of enjoying grapes; viz., sucking the agreeable part from the skin, and swallowing the tough, acid, central portion while it remains sugar-coated.

The Catawba wine has the same defects as the grapes, being deficient in richness and fulness, with an excess of acid. On account of its offensive aroma, it ranks much lower than it otherwise would with the drinkers of fine pure Hock wines.

The Diana is a descendant of the Catawba, and superior to its parent in some particulars. It ripens earlier; the skin is free from acridity; and, as it ripens to the centre, the berries are good to eat entire.

In young vines, and those that overbear, the peculiar odor of the grape is so strong as to be offensive. Its wine is more full, rich, and generous than that of the Catawba.

From the Diana comes the Iona. The Walter is a new grape; my own impression of which is, that its fruit is scarcely distinguishable from the Diana.

I am not fully persuaded, that, in the large group of Rogers's grapes, there exists any foreign admixture. [We are inclined to think that Dr. Grant stands almost alone in this opinion. — *Ed.*] They are a great improvement upon the natives from which they sprung. Some of them under the middle period, or Isabella *régime*, would have been called very good; but not one of them can be called very good when tried by our new standard of the third period, or the low foreign standard of the Golden Chasselas. I gladly admit that all the vices of the Fox family appear in most of them in so mitigated a form as to lead us to hope that the ultimate results may be most happy.

No. 4, for its size and earliness, is a favorable sample of that class of them that has a tendency towards a meaty texture of the flesh; and No. 15 comes nearer to a true grape than any other I have tested satisfactorily: but they will not bear strict criticism, and fall below the Delaware in high points of quality.

The Israella I have always placed above all the Rogers's grapes in vinous spirit and ripening to the centre. Its flesh is juicy, but rather melting, and has

been compared to that of a fine plum. It begins to ripen early; and, under favoring conditions, the ripening advances until the flesh becomes a uniform mass of juicy pulp, and the foxiness apparent earlier disappears. It has made good wine, but has never claimed comparison with Delaware and Iona.

The Adirondac is an Isabella with its positive faults removed, and no large amount of goodness added. It is scarcely foxy, and ripens through; and is simply sugary without being high in any rich, animating quality.

The Diana Hamburg, in appearance, is notably foreign; and the presumption is not, therefore, in favor of its hardiness.

The Ives affords a phenomenon altogether new. It is claimed to be capable, unassisted, of making enduring wine; and yet, in quality, it is in the extreme of foxiness. Unlike other foxy kinds, it hangs well on the vines.

It is a wine-grape only, and counted as a seedling of the Isabella.

Another standard of quality prevails extensively, not adopted as a standard of improvment, but quite the reverse; not proposing to make an effort to inform the public taste, but to deal with it, and take advantage of it as it is, which is admitted to be a state of ignorance; and this standard is typified by the Concord Grape.

Although this variety is well known, it seems fair to introduce here a somewhat minute analysis of its characteristics.

The skin of the Concord abounds in foxy odor and harshness, but is very thin. The portion of the flesh that becomes ripe is buttery, and not unfrequently becomes *tender* all through, but never *ripens* in the strict sense of the word. The resemblance to ripening towards the centre is only the breaking-down of the texture from incipient decay, by which it mingles with and dilutes the whole mass.

The first impression of the Concord Grape upon the taste is sugary, and, if not fully ripe, sprightly; but it is greatly wanting in richness and vinous spirit, and its flavor is impure.

It is recommended for the table and for wine: but, to my apprehension, it is more objectionable for the latter than for the former use; all its disagreeable qualities being exaggerated in the wine.

The Hartford Prolific occupies nearly the same position; i.e., it is intermediate in quality between the best wild grapes and the Isabella. The one is the result of a well-directed effort in aid of nature; and the other, a remarkable spontaneous effort of Nature at improvement.

Two classes remain, each of which requires a word of notice. Both are strictly foreign in appearance and in quality of fruit, without having the foreign tenderness of leaf.

The Lincoln is a type of the Southern group; and the Northern is represented by the Elsingburg, and perhaps the Norton's Virginia. They are all somewhat hardy against mildew, and several are early. The Elsingburg is very hardy and healthy.

Excepting Norton's, they are excellent for eating, but too small. Herbemont makes a light wine that lacks endurance. Lincoln and Lenoir make a wine that is pure, rich, and excellent. Norton's makes a true wine, very heavy and astringent.

It is neither early nor productive. If the size of these grapes could be increased, and their quality maintained, they might become valuable. At present, they do not deserve much consideration.

[We deem Dr. Grant's paper of great value to all grape-growers, whether amateurs or professional vignerons; and we give the above condensation of it, with no expectation that half those who read it will agree with the author, but in the belief that the discussion to which it will give rise must and will be highly profitable. — *Ed.*]

A Vineyard on every Farm. — Some day in the future, the art and practice of wine-making will be as familiar and universal amongst us as the manufacture of cider is now. And the juice of the grape, properly prepared, is greatly superior to that of the apple in strength and health-giving elements. It is an easy matter for the majority of farmers to provide ample supplies of wine for their household-use at a comparatively trifling cost. A half-acre in each hundred of cultivated land, set with vines of hardy varieties, would be sufficient, if well cared for, to furnish both fruit and wine for the number of people occupying, on the average, that area. Doubtless there are limited regions in our country where grapes would not succeed; but the area is vast where they would thrive to a sufficient degree to make the growing of them for family-use satisfactory, although it might be far from profitable to raise them for market. In any neighborhood or locality where a solitary vine does well, it is certain that enough others will thrive to supply the wants of the population. By such universal planting only can we hope to see the rural population of our land supplied with fruit and wine; for the products of the favored grape-regions, where the culture is carried on extensively, will be mostly absorbed by cities.

Let every farmer have his vineyard, as well as his orchard, not planted with a view to selling its products, but to consuming them in his own family. It is pretty safe to assert, that, where apple-trees will flourish, some varieties of grapes will do tolerably well alongside of them. The manufacture of wine for home-use should be conducted almost precisely like that of cider. Have the fruit ripe and clean; mash it, and press out the juice with care. Let it ferment a few days, like good cider; then rack it, cleanse the casks, and refill them. Bung tight, and rack again early in the spring, and the third time on the approach of hot weather. Have sound, sweet casks; keep them full, and store in a clean, cool cellar, and your beverage will excel in grateful flavor, and healthful, exhilarating effects, when the hard labor and hot suns of summer tempt its trial. It is as easy and simple to make good wine as good cider. The yield of wine would probably average four hundred gallons per acre from well-cultivated vineyards of strong, hardy varieties like the Concord, Ives, and Clinton. — *Rural New-Yorker.*

Sale of Grapes. — A small invoice of Iona and Israella grapes was sold in Boston on the 19th of October, at twenty cents per pound for the Ionas, and twelve cents for the Israellas.

The market on that day, we may add, was overloaded with Catawbas, Isabellas, and other grapes.

THE Editors of "The American Journal of Horticulture" cordially invite all interested in horticulture and pomology, in its various branches, to send questions upon any subject upon which information may be desired. Our corps of correspondents is very large, and among them may be found those fully competent to reply to any ordinary subject in the practice of horticulture. Any questions which may be more difficult to answer will be duly noticed, and the respective subjects fully investigated. Our aim is to give the most trustworthy information on all subjects which can be of interest to 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.

L. L. A., Montpelier, Vt. — The Early Red Cob, Stowell's Evergreen, and the Marblehead Mammoth, are varieties of sweet-corn that we can recommend from experience. Darling's has the merit of earliness, but not much else in its favor, as we have seen it. We know an amateur-gardener who had good success this year with sweet-corn started in a cold frame on inverted sods, and transplanted about the first of June.

P. F. J., St. Louis. — We answered, in the October number of this magazine, a query from another correspondent very similar to yours; viz., Does it pay to remove and transplant grape-vines more than four years old? We repeat here, that, as a general rule, it is bad policy to transplant a vine that is more than two years old. A good vine raised from a single eye, transplanted at the end of the season, after having had its roots shortened one-third, and suffered to remain another year in the nursery, makes *our* ideal vine.

When the Diana was less common than it is now, we bought so large vines, four or five years old, hoping to get fruit very speedily. We took every possible precaution to insure success; but four or five years had to pass before these vines bore well. It is a noteworthy fact, that we took layers from these large vines; and from these layers we got symmetrical plants that fruited abundantly before the parent-vine could bear more than a half-dozen ragged clusters.

X., New-York City. — You are rightly informed: peaches were once a standard crop in some parts of Massachusetts. We have seen them wasting on the ground in many a large orchard, too abundant to sell or give away.

For ten or twelve years, the peach-crop has been a failure, or rather the trees all died long since; and we have had to depend on foreign supplies.

We have hopes of a better time coming still; for trees set three years ago by some of the persevering ones have come into bearing this season, and have done well.

P. J., Augusta, Me. — You say you are discouraged by the length of the nursery-men's catalogues, and bewildered by the number of varieties of fruits and flowers offered for sale; and you ask, whether it is not about time to stop the production of new kinds. Our answer is a very decided No. We have not yet reached perfection in any variety of fruit; and for a generation that has produced the Dana's Hovey Pear, the La Constante and President Wilder Strawberries, and the Iona Grape, to stop its experiments, would be absurd, if it were not impossible.

Three-quarters of the varieties of pears, strawberries, and grapes, might, to be sure, be blotted out of existence, and we should not lose by their disappearance; but we tolerate them for the sake of the prizes included in the remainder of the list.

INQUIRER, Dorchester, Mass. — In reply to your question about Rogers's 19. we can simply say that it is one of the earliest kinds we cultivate, of tolerable quality; but that with us, and with some other growers, we know it fails to set a handsome, well-developed bunch.

MARY BRIDGE, Rochester, N.Y. — The plant you describe is probably *Vallota purpurea*. It resembles an amaryllis, and requires similar treatment, but should never be allowed to dry off so as to lose its leaves. In winter, keep it moderately dry if it is not growing. It flowers in August and September.

There are varieties which differ only in size, and brilliancy of flower.

MISS E. M. B., Hartford, Conn. — It is very easy to keep your croquet-ground in good order. The treatment at this season is to mow it close, and top-dress with well-rotted stable-manure. Early in the spring, rake the ground clean: and, during the summer, keep the grass well cut; as often as once a week will be sufficient. Any coarse-growing grass should be cut out: fine grass and white clover make the best sod.

AN INQUIRER, Worcester, Mass. — Low's "Ferns," eight volumes octavo, and "New and Rare Ferns," one volume octavo, published by Groombridge, London, 1865, will give you colored illustrations of all the plants you mention. As an elementary volume, "Ferns British and Foreign," by John Smith, London, Robert Hardwicke, 1866, will be of service.

MYSTIC RIVER. — You cannot succeed in fruit-growing unless you are willing to give attention to it. Trees will not do well unless well cared for. We can tell you how best to direct your care, but not how to succeed without care. "What is worth doing at all is worth doing well." Tell us what you wish to plant, how much ground you have, and we will tell you how and what to plant, and the most economical culture.

IN answer to many inquiries, we reply, that we honestly believe the President Wilder Strawberry to be all we claim for it. Our editors have seen it in every condition, and know its value. We believe it will more than answer all expectations.

PARLOR PLANT. — Your plant is *Pittosporum Tobira*. It is a good house-plant, thriving with very little care, and usually flowering freely. The blossoms are white and very fragrant. Give it rather a large pot, and plant it in a mixture of peat and loam.

There are other species; but they are seldom seen in cultivation.

A. M. DUNBAR, Boston. — You have been deceived, but have plenty of company. The bulbs you have bought, and paid such high prices for, are probably of little value, and are certainly not what you have bought them for. Last autumn, a number of Germans travelled through New England, selling bulbs for which they manufactured names to order. They supplied blue tulips, red crocuses, scarlet narcissus, and other novelties, to the ignorant, at good prices; and even imposed upon the knowing ones by selling good bulbs of poor varieties for new and choice kinds.

We are sorry to hear they are in the field again. Make a rule only to buy of responsible dealers, and you will find your bulbs true to name and description.

C. B. MONTANE, Cleveland, O. — Persimmons (*Diospyros*) can be cultivated, and would doubtless improve if seedlings were raised from the best wild varieties. Experiment in this direction is worth trying.

AMATEUR MYCOLOGIST. — We know of no volume on fungi which will answer your need. An elementary work on mycology is much needed, and would be of great service.

RED-HOT POKER, Amesbury, Mass. — The plant commonly called by this name is botanically *Tritoma*. There are several varieties, which differ chiefly in size, and season of bloom. If covered with oak-leaves in winter, the plant will remain uninjured in the open ground.

NAME, Ellsworth, Me. — The plant you mention as "Fair Maids of France" is a double white buttercup, and is *Ranunculus aconitifolius flore pleno*. It is very pretty, hardy, but yet rather difficult to keep. If you have a good stock, we should like a plant.

FIRST FRUITS, Tewksbury, Mass. — Names of pears: Number one, Vicar of Winkfield or La Curé; number two, Winter Nelis; number three, Easter Buerré; number four, White Doyenné; number five, Laurence; number six, Frederick of Wurtemberg; number seven, Duchesse d'Angoulême.

NAMES OF FLOWERS. — A. M. Number one, *Tagetes signata pumila;* number two, *Centaurea cyaneus;* number three, *Campanula carpatica alba;* number four, an irrecognizable wild aster.

SUSIE P. — Numbers one to six only different forms of English ivy: the leaves vary very much. Number seven is not an ivy, though commonly called "Coliseum Ivy:" the botanical name is *Lenaria cymbalaria*.

MATTHEW R., Lyme, Conn. — The leaf is *Eleagnus argenteus:* would make a pretty hedge if you can get enough of it. The flower is *Thunbergia alata*.

A. BURNS, Portland, Me.; DERRY, Keene, N.H.; QUESTIONER, Oswego, N.Y. — The flower sent is *Anemone Japonica*, and not a chrysanthemum, as two of you suppose. It is perfectly hardy.

X. SHEPARD, Harrisburg, Penn. — The best protection for the ground is leaves; for shrubs, evergreen boughs, tied or placed around them. Rhododendrons are generally hardy.

NEW VARIETIES, New York. — The two new tree pæonies raised by Dr. Kirkland of Cleveland, O., were selected by him, as the best, from a stock of many hundred seedlings. This plant is a special favorite with Dr. Kirkland, and he has devoted much time to its improvement. These two seedlings he considers as new and very distinct. He has named them "Colonel Wilder" and "Edward S. Rand, Jun.," They have not yet been offered for sale. The description you read of them in "The Horticulturist" was probably written by F. R. Elliot, one of Dr. Kirkland's neighbors.

E. G. B., Boston, Mass. — 1. The Delaware Grape is so capricious, that no positive answer can be given to your first inquiry. Buy good strong vines with plenty of roots; see them taken up yourself; plant in a rich, well-drained soil; and, by giving an annual dressing of rotten manure, you will have all the chances of success in your favor.

2. No advantage that we know of is gained by uncovering buried vines of the Iona or any other variety very early. We always postpone taking up our own vines just as long as we can, and not run the risk of injuring the swollen buds.

3. The frost of the 18th of September, 1868, injured grape-clusters that were exposed on the upper parts of trellises; but, in cases where the grapes were where they should be, — viz., at the bottom of the vine, — they generally escaped.

4. Perfectly practicable; but straw-matting is better and warmer.

5. Winter-apples may be gathered about the 15th of October. Put them at once in barrels, and set the barrels in an open shed.

6. A potato-grower of great experience tells us that the 12th of April is the very earliest that he dares to plant potatoes in this latitude; and then the severe frosts of May often injure the tops.

7. The Early Rose Potato, according to present indications, bids fair to be one of the very best and earliest kinds. We are going to plant the Harrison and Goodrich for market next year.

8. Onions *will* do well in light, sandy soil liberally manured; and they will *not* do well in any soil without abundance of fertilizing material.

T. T. S., Dansville, N.Y. — The parasite on the pear-stock you sent us is a species of cuscuta or dodder.

A. F. W., Baltimore, Md. — Sweet-potatoes *are* occasionally raised here at the North for market, and frequently grown in private gardens as a matter of curiosity. We raised a few this year, but did not set out our plants until the 10th of June, and they did not come to much.

We believe that sweet-potatoes are raised in Kingston, Mass., with some degree of success; but, wherever raised at the North, their flavor is apt to be inferior to that of the Southern-grown ones.

They are raised on ridges in light sandy soil with an abundance of manure.

A. P. F., Worcester, Mass. — It is as easy to raise seedling geraniums of pelargoniums as it is to raise white beans. Plant the seeds in the house in light rich soil. Put them in endwise, with about an eighth of an inch of earth over them. Keep the soil moderately damp and warm, but not too wet; and the seeds will begin to come up in about a month.

Construction Account. — A span-roof, curvilinear greenhouse costs more that a lean-to, but, in appearance, is far handsomer. Read Mr. Lord's articles, now publishing in "The Journal of Horticulture," if you wish new and good ideas on greenhouse-building.

S. G. L., New York. — Concord grapes raised in Massachusetts, and packed in five-pound boxes, sixteen boxes in a case, have been offered for sale in the Boston market this present season. They were selling at thirteen cents per pound by the box, Oct. 13.

We have no doubt that it will be profitable to grow Concord and other grapes for the market in this State, provided always that the grower has a warm, well-drained, and well-sheltered piece of light land, and does not plant any but well-proved kinds.

We know various persons whose belief in the success of grape-culture is so strong, that they are planting vineyards of from an acre to twelve acres in size.

A. B., Hartford, Conn. — The Soissons Bean has succeeded admirably with us this year in spite of the cold weather in May and June. We think we can commend it.

F. K. W. — How shall I raise seedling strawberries? — Plant the seeds just as soon as the berries are ripe — mashing the strawberries with dry sand to separate the seeds from the pulp — in rich soil, in a cold frame or spent hot-bed. They will begin to come up, if you keep the glasses on, in about a fortnight. Water liberally every other day if the weather is very hot; and by doing this you will be able to keep the sashes on most of the time, and will, by the end of October, get plants large and strong enough to keep over winter. Fill the frame with dry leaves, put the sash on, and lay over all a few boards. Your little plants will be as fresh and green as you can desire in the following April. Or you can sow the seeds in fall or spring in the open ground. Separate the plants when they have three or four rough leaves. Water and shade them for a few days after transplanting.

E. G. — We have tasted this year the so-called "Main Grape," — those that we examined coming directly from Mr. George Main; and we are unable to see that they differ more from the Concord than two samples of Concord grapes raised in different parts of our grounds differ from each other. We see yet no reason for considering the Main Grape other than the Concord.

A. F. D., Providence, R.I. — I should like two of the new President Wilder Strawberry plants. Please advise me whether to pot or set in open ground as best in this locality. I have had very good success with almost all varieties. My soil is generally a heavy clayey loam. Does the Wilder do better on such, or in sandy soil? — Any very choice or rare strawberry-plants received in the fall may, perhaps, deserve a little extra care, such as potting and keeping in a cold frame through the winter; but, in the spring, they should be set in the open ground. It is a very easy matter to make strawberry-plants live and multiply. They may be set out any time from the first of April till (in this locality) the middle of September; but our success has been very good with plants set in April and in August.

The President Wilder will undoubtedly flourish on such soil as you describe.

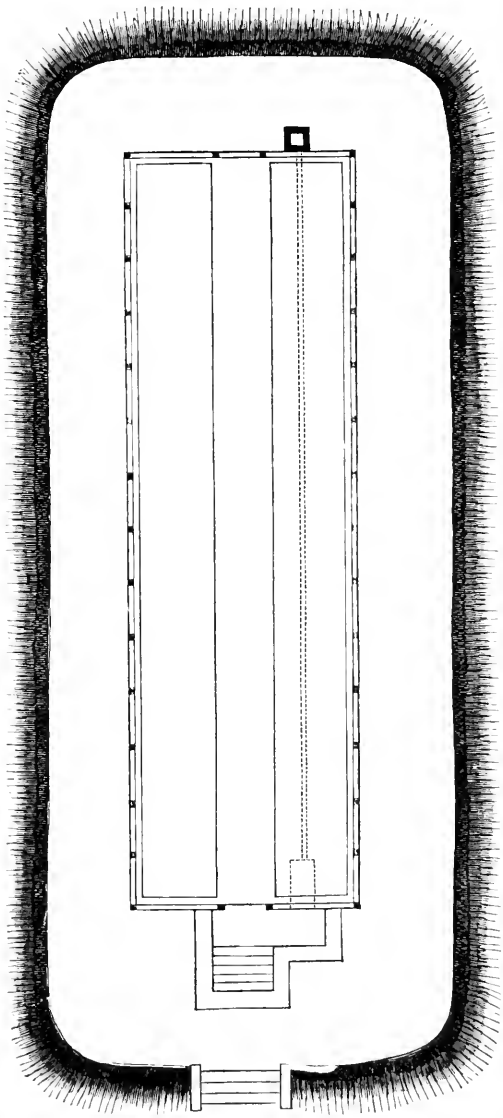
A CHAPTER ON GREENHOUSES. — No. III.

For the illustrations of this number, I give the ground-plan and two elevations of a small house, more familiarly known under the name of a pit. Elevation No. 1 is more particularly used for professional or commercial purposes, in the propagation and growth of plants and early vegetables. Being very low, it is easily warmed, and the temperature readily controlled. This form is much in use among nursery-men, and is well adapted for propagating-purposes.

Elevation No. 2 is better arranged for the amateur who wishes a small house easily and cheaply constructed: it will enable him to keep his stock of bedding-plants, with the desirable tender and half-hardy varieties used in decorating his grounds during the summer months, and be a source of recreation and pleasure for his leisure moments. The ground-plan being the same, the difference is in having a side-sash, a part of which is used for ventilation: it also gives more height, and thus allows of the growth of larger plants.

The location of this house for the amateur should be near to or in the

garden, as thus it is more conveniently cared for, and is more easily availa-

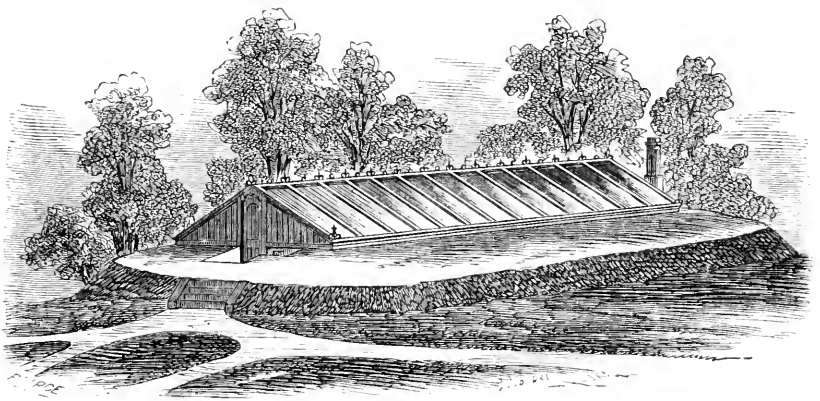


ble for the growth and forcing of early vegetables and plants for the gar-

den. The usual size of these pits would be twelve feet in width, and from thirty to fifty or more in length, as may be desirable.

As will be seen by the ground-plan, it has one path in centre, with a broad shelf on each side ; the height of the shelf to be governed by the purpose for which it is used.

Select a position where perfect drainage can be had. Excavate the soil three feet deep ; lay a ten or eleven inch hollow wall of brick three feet six inches high ; frame the two upper courses into an eight-inch wall, with a



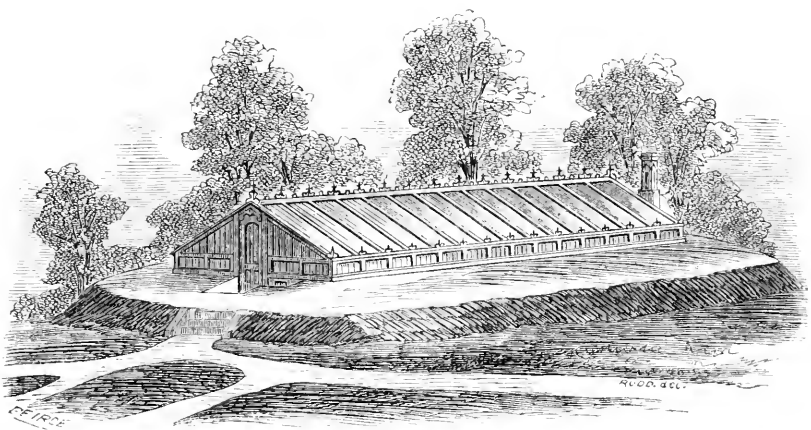
No. 1.

course of headers at top ; have the inside line of the wall straight and true, letting the set of the brick-work be on the outside. Or, if it is desirable, a row of posts can be set, ceiled up on both sides, and the space between filled up with tan-bark or saw-dust. This will leave the walls six inches higher than the ground, which should be graded up nearly to the sill, that the water may be carried freely from the building.

The roof, being of one-quarter pitch, gives a rise of three feet in centre. For No. 1 elevation, this will give sufficient height to pass freely in the centre of the house. Elevation No. 2 will, of course, give more height. The entrance is at the ends, for which a series of steps is provided outside.

A platform or scuttle door should be provided to let down and protect the entrance in the stormy weather of winter. These pits for ordinary purposes are easily warmed with the common flue running the length of the house. The mouth of the furnace may be placed outside, and covered over ; or a partition may be placed across at one end to prevent the dust from settling on the plants.

If bottom-heat is wanted, the combination of the flue and water is very effective. A small boiler placed at one end, with a flue running the



No. 2.

length of the house to carry the smoke, will give sufficient heat. A tank is placed on one side, with pipes attached to the boiler, and gives circulation to the water, which furnishes bottom-heat. This is a most excellent, effective, and cheap arrangement for heating.

A tank for bottom heat is a good arrangement for the amateur's house: for propagating, for forcing into flower, and for various purposes, it is invaluable. A tank from ten to twelve feet in length is sufficient for ordinary purposes. For a good propagating bed, water for bottom-heat is the best of all arrangements. But the water should *not be covered with slate* or any *metallic substance* for the soil to rest upon. To make a good

tank, the sides should be of dry pine, two inches thick, ten to eleven inches wide; the bottom to be an inch and a half thick, tongued and grooved tightly together, grooved for the sides, and nailed crosswise the tank in such a manner as to be perfectly tight. A strip two and a half inches wide is fastened to the sides at the bottom on the inside; a division-piece of the same width in the middle to divide the current, and support the covering. Before putting on the covering, the tank inside should be well painted with two coats of coal-tar and linseed-oil boiled together: the covering should be of perfectly sound stuff, free from sap, three-quarters to seven-eighths of an inch thick, tongued and grooved to fit tightly, well painted both sides with the same solution, and well fitted and nailed to the supports. No steam or vapor should be allowed to rise from the bottom. A few small openings in the sides of the tank, level with the top of the covering, avail for drainage. On the covering should be placed one and a half or two inches of fine broken brickbats or gravel: this should have a thin course of strawy or coarse litter to receive the sand for plunging. The pots with the cuttings are plunged in the sand to the rim, the whole being kept moist; and with this arrangement it gives a most genial bottom-heat, that, for regularity and efficiency, is not excelled by any other process, with an almost entire certainty of rooting every cutting, if properly prepared and attended to.

Ventilation is provided by a row of ventilators along one side of the ridge.

The cost of these pits, made in a durable manner, with double thick glass, say forty feet in length complete, is, for elevation No. 1, from three hundred to four hundred dollars; for elevation No. 2, fifty dollars extra, more or less, according to the method of heating employed. *F. A. Lord.*

Syracuse, N.Y.

SOIL FOR BULBS.

As a general rule, a soil with a proportion of sand is best suited to the growth of bulbs. Some even thrive in pure sand; and there are very few which will succeed in heavy, close, clayey, or peaty soil.

GRAPES IN 1868.

THE present season has been marked by a late, cold spring; cold, dull weather in May and June, retarding the blossoming of the grape in many instances till the fourth day of July; and a frost of unusual earliness and severity on the night of the 17th of September. We should have been very badly off for grapes unless we had had decided help from the intensely hot weather in July. The most experienced grower of out-door grapes in this State calls this season the worst he has known for twenty years: yet, if this be really the worst, we may take heart, and go on with our work; for grapes, in very many cases, have been far from a failure.

I give below briefly the results obtained with my own vines, glancing now and then at what my neighbors and friends have done.

Allen's Hybrid. — Vines vigorous and healthy; showing in August, in unfavorable, damp locations, only very slight traces of mildew. No fruit. In Hingham, Mass., on rich, deeply-trenched soil, this variety succeeds admirably. The vines of Mr. Alfred Loring of the above town were perfectly loaded with rich clusters, some of which weighed a pound each.

Alvey. — Vine not a rank grower; healthy, and free from mildew. No fruit.

Adirondac. — Vines of this kind made only a tolerable growth. There seems to be an undefined weakness inherent in the Adirondac that possibly will prevent its being widely planted. An Adirondac and Iona vine of the same age, planted side by side, in precisely similar soil, afford a striking contrast; the Iona being of rank and robust growth, with several fine clusters, and the Adirondac showing hardly any growth at all.

Concord. — This standard variety behaved as usual. With me, the frost of the 17th of September only cut down the leaves at the top of the trellises. Most of my vines are now (Oct. 14) green and uninjured.

Clara. — Very late, tender, and subject to mildew. Have cut mine down.

Clinton. — I am gradually weeding out the few vines I possess of this atrocious variety. I say, gradually; for where there is a bit of root left, or a cutting buried, a vine will be sure to come.

Creveling. — This grape mildewed worse than any thing else, if I except the Diana Hamburg. One vine managed to get a few bunches about three-quarters ripe.

Cottage. — A strong, vigorous grower; showing, in leaf and growth, signs of its parentage. Among badly-mildewed vines, it showed no speck of disease. No fruit. This and the Una are descendants of the Concord, and were raised by E. W. Bull of Concord, Mass.

Delaware. — The Delaware mildewed with me very badly in a strong, rich soil; very little in a light, poor one. I judge that mine did not ripen its wood well last year. Some dead canes, and very little fruit. The mildew stopped the ripening of the few clusters I had.

Diana. — My Dianas have gone through the season nobly, making a strong growth, ripening a moderate crop, and not showing a sign of disease or mildew. To be fair, however, I must say that the fruit ripened very unevenly.

Diana Hamburg. — This grew very feebly, and lost every leaf by mildew before the middle of the summer. It was "so soon done for," that I "wondered what it was begun for."

Dana. — This vine made a good, vigorous growth in a strong soil, suffered a little from mildew, but ripened its wood well. No fruit.

Franklin. — Vigorous, and a rank grower; yet a large vine was badly winter-killed. It recovered, I am sorry to say, and sent up canes ten or twelve feet long. A worthless grape.

Hartford Prolific. — Ripened about as usual. Dropped its berries very badly.

Iona. — As the pages of this journal can testify, I have always praised the fruit of the Iona; for I regard it as simply the best out-door grape ever raised in this country: but I have never been so well disposed to the vine itself as I have this present trying season. With me, in a damp, undrained soil, only a few of the lower leaves suffered, and the vines made a good growth. On a dry, well drained, and not very rich soil, the Iona made a strong, healthy growth, and showed no signs of mildew. My vines bore for the first time this year, and ripened their fruit, though late. They did not blossom till late; and in a more favorable season, with older vines, I

think we shall ripen this priceless grape with tolerable regularity, even in Massachusetts.

Israella. — Vigorous and healthy in well-drained soil. A little mildew in a damp location. The earliness of this grape, and excellence of its fruit, are gaining it new friends every year.

Logan. — Unripe, sour, frost-bitten, and worthless. I have fruited this variety several years, always with the same result.

Martha. — Vigorous, strong-growing, and perfectly healthy. No fruit.

Nonantum. — This, the companion-vine to the Dana, is a good and moderately-strong grower. It mildewed in a most unfavorable location, but not enough to prevent its wood from ripening.

Rebecca. — This, in sandy soil, grows a few inches annually.

Rogers's 15. — Many bunches were affected by rot. Those that did not rot ripened very well. The 15 should not be eaten until completely ripe; for it does not lose its rank, native taste, and astringency, till then. The vine maintains its reputation for rankness of growth; but with me the clusters are very loose and ragged. The flavor improves as the vine gets older.

No. 4 ripened well with me this year, and I consider it a very valuable grape. If it were a little earlier, I even venture to say that it would be a dangerous rival to the Concord.

No. 19 ripened earlier than any other grape I have. The bunches are ragged, and the grape hardly first-class; but its earliness makes it valuable.

No. 53, better known as Salem, is a good grower; ripens its wood well; and is with me, in a rich soil where other varieties mildew, perfectly free from spot or stain.

To Kalon. — This vine begins to mildew earlier, and mildews with greater vigor and pertinacity, than any other kind. When the leaves have mildewed and fallen, the berries rot.

Una. — This was sent out last spring with the Cottage. It is a good grower, not quite so vigorous as its companion, but perfectly healthy where other varieties mildewed. I have abundant reason to consider this a grape of great promise.

Union Village. — In a sheltered situation, this got about as ripe by the 10th of October as it probably ever does here. By thinning the separate

grapes in the summer, I got clusters like Black Hamburgs; and people who did not thin their berries got bunches just like mine.

I have seen no sphinges, and very few rose-bugs, this season; but I learn that in Concord, in this State, the grape-growers have had hard work to subdue this last-named pest.

I used sulphur considerably on my vines through the summer, but saw no marked effect. *F. M. Merrick, Jun.*

WALPOLE, MASS.

EUREKA TOMATO.

IN your June number, over the signature of "C. N. B.," the Eureka Tomato is noticed as having been originated by myself. It was received by me from the late Major Kendall of Philadelphia. By selection and proper training, it has reached an upright, robust habit, and is productive. Transplanted from the hot-bed May 15, it perfected its first fruit this season on the 25th of June. Upon Keyes Early, the fruit is full grown, but not yet red; upon the Tilden or Valencia, the fruit is one-half grown; the conditions under which they were grown being alike. I have a new seedling the present season, extremely compact, rigid, and dwarf; foliage very dark, blistered; glaucous; blossoms, so far, sterile. As an ornamental plant of curious growth, it may be valuable. Vegetables are with us in full supply. Early Sovereign potatoes, Carter's first crop, and O'Rourke peas, are fully ripe. Early York, Goodrich, Sebec, and White-sprout potatoes, fit for the table since June 20. Champion-of-England peas and string-beans in full perfection; as are also Erfurt cauliflower, Wakefield, and French ox-heart cabbage. Early corn is in blossom, and field-corn upon one of our forty-acre lots stands breast-high. The weather is very hot and dry; but the crop prospects are good. Apples are scarce, owing to the pollen having been washed by the heavy rains at the time of blossoming; but pears are doing well, and peaches are a full crop. *P.*

CHAMPAIGN, ILL., June 29, 1868.

NOTE. — The above should have been published in an earlier number, but was mislaid.

THE POLYANTHUS.

An old, well-known, but much-neglected flower; yet one which little merits such neglect, and which we prize as one of the best spring-flowering plants. Botanically, the polyanthus is a variety of the oxlip (*Primula elatior*, var. *Polyantha*); whence, as will readily be seen, its common name. It is nearly related to the true cowslip (*Primula veris*) and to the primrose (*Primula vulgaris*), and crosses readily with them; and thence are derived many of the showy varieties seen in gardens.

For a florist's flower, the colors should always be yellow and brown, clear, and the margins of color well defined.

In this country, however, little attention is paid to florists' flowers; and in the present article we desire to call attention to the primroses only as spring-blooming plants. The very name, which is derived from the Latin *primus*, "the first," suggests it as one of the first flowers of spring; as in the garden it is one of the first to push the fresh green leaves through the last year's dead foliage, and early throws up its stalk of showy blossoms.

While there is no plant of easier cultivation, yet, in our uncertain climate, it is safer to grow the finer varieties in a cold frame, or rather to place the frame over the bed in winter. Strange as it may seem, our winters often kill plants which survive in Canada. The reason is, however, very simple. Most plants are not killed by cold, but by alternation of heat and cold, by constant freezing and thawing. In more northern latitudes, the snow which falls in December remains unmelted upon the ground until April, and serves as a warm covering, protecting the plants from the severity of the cold, and, melting in spring, leaves the plant in good condition for its summer growth. But where the snow is melted off many times in the course of the winter, and the plant, root and leaves, exposed to chilling rains, nipping winds, and to the winter's sun, alternately frozen and thawed, it is in bad condition in the spring, if not killed outright. Therefore the careful florist will always have cold frames at hand with which he can cover beds of choice herbaceous plants, or into which he can transplant in autumn, again in spring removing the plants to the garden. We do not intend to say that the polyanthus will not stand the winter without such protection;

on the contrary, we have large clumps which are never transplanted, and

which flower profusely every year: but we always deem it safer to lay a

few evergreen boughs over them in the autumn. They will, however, survive without any protection ; but it must be borne in mind, that, the finer the variety, the more tender it is. The oxlip (*Primula elatior*) is not hardy in Massachusetts, and needs frame protection ; and the true English primrose (*P. vulgaris* or *acaulis*) needs winter protection. Of this latter plant, there are many very beautiful varieties in various shades of lilac, crimson, scarlet, yellow, and white : the double kinds are very showy, and are most attractive ornaments of the flower-garden in May. The English cowslip (*P. veris*) and the red variety (*rubra*) much resemble and require the same treatment as the polyanthus. They are not, however, as showy, but make a pleasing contrast. The species is better than the variety ; the bright canary-yellow of the blossoms being very effective. There is no prettier sight than a bed of seedling polyanthus : no two plants will be alike in flower, and the foliage often differs very noticeably. The chance of getting a fine florist's flower from a bed of seedlings is small ; but all will be good, worth keeping, and prove welcome additions to the spring flower-garden.

And, now, how to procure a stock. In early April, buy a packet of selected seed, which may be obtained of any seedsman. Sow it at once in a shallow pan of good, rich, light soil, covering it very lightly (for the seed is small) ; and place it in a frame on the greenhouse-shelf, or in a sunny window. Water moderately and gently, and in a week the plants will begin to come up. Grow them in full light ; and, as soon as they are large enough to handle, prick them out into a cold frame or into larger pans. When they have gained strength, they may be again transplanted to the garden-bed ; but it is best to grow them all summer in the frame. Keep them well watered, and by November each tiny plant will have become very large, and well prepared for winter. When the ground begins to freeze hard, fill the frame over the plants with dry oak-leaves, draw on the sash, and cover with a board or mat to keep off the rays of the sun.

Early in April uncover, remove the oak-leaves, and the plants will be found pushing into growth. Cover with the sash on cold days, and for a while at night ; giving plenty of air in warm, sunny days. The plants will soon show bloom if in a garden-bed : the sash may then be removed ; or, if desirable, the plants may be carefully lifted, and removed to the garden.

After the flowers have faded is the season for propagation, which is

readily performed by dividing the plant into as many plants as are there crowns. The long, coarse roots should be cut in, and the plants carefully reset. It is best, however, to allow the more common varieties, and those which are to remain in the garden, to form large clumps, as thus they show better when in bloom. Seed is freely produced, and should be gathered when the capsule dries and opens.

The subjects of our illustration are two well-marked seedlings, and will illustrate the character of the flower. Most of the varieties will do well in common light garden-soil; but the best compost is good turfy loam, well-rotted cow-dung, and sharp sand enough to keep it open.

There are many other primroses which are worthy of cultivation, especially *P. cortusoides*, a charming species, and the many varieties of *auricula*, which, however, require frame or greenhouse treatment.

To all who love spring-flowers, we say, Plant a bed of polyanthus.

E. S. R., Jun.

Glen Ridge, November, 1868.

NEW SYSTEM OF ROSE-CULTURE.

Will you allow me to again briefly refer to this subject? The remarks attached to my recent note (page 220) imply that a novel mode of pruning is necessary to produce the best results on the pegging-down system. For the benefit of those of your readers who may not fully understand the substance of the remarks alluded to, I beg to say that no new or novel system of pruning is necessary. Rose-pruning simply consists in a "systematic renewal of the old wood;" nothing more: so that all *novelty* in this *new system* vanishes into "airy nothing."

I have practised the mode exactly and precisely as described at page 149 for at least twenty-five years; and I am very certain that it was not introduced by me. After reading your remarks on "Agricultural Newspapers," at page 228, I considered it a duty to your Journal to make a note of the above.

William Saunders.

A VISIT TO MR. BULL.

PROBABLY very few of the thousands who cultivate and derive profit and satisfaction from the Concord Grape are aware that its originator, Mr. E. W. Bull of Concord, Mass., has not been content to stop in his experiments, or have any notion of the further great successes he has achieved.

Accompanied by a grape-growing friend, we made our annual visit to him the last week in September of the present year. We found Mr. Bull as enthusiastic as ever, and as willing as ever to answer the thousand and one questions with which we overwhelmed him. An inspection of his vines showed that the heavy and unusual frost of the night of the 17th September had done vast mischief. Mr. Bull said that this was the very worst season he had known for twenty years; the dull, cold weather and cold rains in May retarding the blossoming of the vines, and the early frost killing the leaves, and causing the berries to drop. Still, the grape-crop was not a failure; for, at the time of our visit, they were cutting Concords for the Boston market, both from Mr. Bull's vines and from the neighboring vineyard of Capt. J. B. Moore. The Concords, however, we did not care so much for, having plenty at home: but we were very desirous to see the new seedlings; and these were shown to us with the greatest freedom, and their merits and peculiarities fully explained and set forth.

The Concord Grape is certainly a vast improvement upon the native grape from which it came; but it is eclipsed, we think, by several of its own children. Two of these descendants are of especial merit, though perhaps not better than some which the originator does not yet choose to send out. These two are the Cottage and the Una; the former black, and the latter yellowish-green. They are both of excellent quality, and the Una is an especially attractive grape. It is claimed that the Cottage is two weeks earlier in time of ripening than the Concord, and that the Una is only a week behind its companion.

Among other seedlings which we saw and tasted was a very large and excellent golden-green grape, of fine size and shape, and doubtless a valuable acquisition; an excellent black grape, No. 51, we think, of extreme earliness; and a grape, or more than one, perhaps, without a particle of

fibrous centre or unripe pulp. Both Mr. Bull's visitors were very much struck with this yet unnamed variety. The flesh of this grape breaks down under the pressure of the tongue ; and the seeds alone are left, just as is the case with the best foreign kinds. Another seedling was shown to us, with dark and somewhat astringent juice, from which an excellent port wine of great body and high character has been made. This is a grape from which we shall expect important results.

Various other seedling-grapes were examined, tested, and tasted by us ; but we cannot give all the details of their characteristics.

We saw enough to make us certain that Mr. Bull has produced, from the tough, acid, and inedible grape of our native woods, several varieties that cannot help making a great impression upon all vine-growers as soon as they are disseminated and become better known. In some, the color of the original has been changed from a lustrous black to a gold-green with a pearly bloom ; in others, only a trace of the fibrous centre of the native is left ; and in one, at least, this fibrous portion is completely wanting. New wine-making characteristics have been introduced, the form of the bunch and berry improved ; and all this has been done without giving up an atom of the native vigor and hardiness. (We believe that Mr. Bull sacrifices without mercy any seedling that is not entirely hardy, and capable of taking care of itself through our severe winters.) The Concord Grape, useful as it is, has been but one link in the chain, or, we may better say, a stepping-stone to greater results. Mr. Bull's experimental garden is a sandy hillside. The soil is very poor in organic matter, being really no better than many of our hills and fields that support nothing but short pasture-grass and a few pine-trees ; but is rich in iron, — a fact upon which Mr. Bull lays considerable stress. The vines get a little ashes and bone-dust each year, but, we believe, no other manure. Mr. Bull believes neither in trenching nor high manuring ; and is even afraid to start his grape-seeds by artificial heat, lest he should do something towards enfeebling the plants that these seeds will give. He continues to plant seeds of his best varieties every year ; and we sincerely hope he may live long enough to fruit half a dozen more generations of seedlings, and that his future triumphs may surpass those of years gone by.

CLIMAX POTATO.

THE Climax is a seedling of the Early Goodrich, and originated with the writer in 1864. It has a stout, erect stalk, of full medium height, internodes of medium length, and very large leaves; the tuber is quite smooth, in form of a short cylinder swelled out at the centre, occasionally slightly flattened, and terminating rather abruptly; eyes shallow, sharp, sometimes swelled out or projecting, and always strongly defined; skin medium thickness, considerably netted or russety, tough, white; flesh entirely white, solid, brittle, heavy, and never hollow: and it boils through quickly, with no hard core at centre; is very dry, mealy, of floury whiteness, and of superior

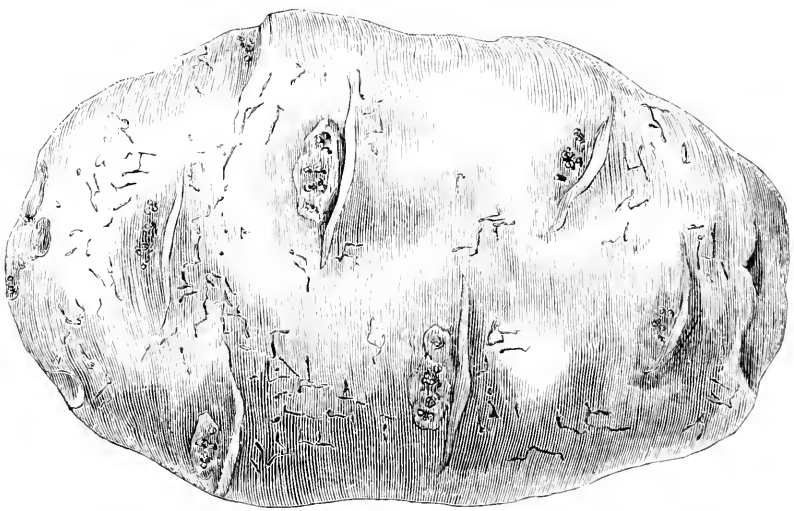


table quality. In productiveness, it is fully equal if not superior to the Early Rose; bears few small tubers; matures nearly with the Early Rose; while its keeping qualities are as good as the Peachblow.

During the heated term of July and August last, the foliage of the Early Goodrich burned badly, that of the Early Rose slightly, while the leaves of this seedling were unaffected.

What I said of the Early Rose in "The American Journal of Horticulture," March, 1868, after another year's trial, I can now conscientiously apply to the Climax; viz., that *I esteem it, all things considered, the most promising early potato with which I am acquainted.* *D. S. Heffron.*

UTICA, N.Y., November, 1868.

FLORIDA AIR-PLANT.

I REMEMBER once to have taken a trip southward to Florida, the land of flowers. Passing up that magnificent river, the St. John's, or, as the Seminoles more beautifully called it, Wee-la-ka, or River of Lakes, on the steamer "Darlington," I observed at various points a curious pineapple-looking plant, growing on the large live-oaks near the river. I at first thought they must have been placed there by the hand of man. So unlike did they appear to me to any parasite that I knew of, that I made inquiries of all I met about them. The invariable answer I got was, "Stranger, them's air-plants." I some time after that met a gentleman, who, for short, I will call Doctor, who gave me the desired information in answer to my question. I will give you as near as I can from recollection what the doctor said about them.

"Well, sir," the doctor said, "a great many people, and knowing ones too, call the Florida air-plant a parasite. It is not: it is truly an air-plant; subsists on what it can draw from the air and from the heavy dews. You see its coarse, fibrous, and rather sparse roots are not fitted to draw nourishment, but serve the purpose of holding the plant firmly to the tree: this service done, the plant takes care of itself. I have cut off all these roots, and bound the plant strongly to a limb, and it grew as well as if never mutilated. The air-plant belongs to the order *Bromeliaceæ*, genus *Tillandsia*, named in honor of Elias Tillands of Abo.

"The air-plant is a curious object to look at. Its large whitish-green-looking serrated leaves look so much like that of the pineapple-plant, that if I were to take a large one from the tree, and put it on the ground near a bed of pineapple-plants, you could hardly tell the difference. Of these air-plants we have many varieties, from the little one three inches high to the gigantic one six feet high: all of them vary, some in leaf, some in flower. This large variety sends up during the summer a long spike crowded with numerous greenish-white flowers, which in a short time fall off. They almost invariably form seed. The spike is from four to eight feet high, and, while in bloom, is somewhat conspicuous.

"This large air-plant has at least one useful quality aside from its beauty.

It always contains water, — not water dripped from trees, but pure, heaven-distilled, cool water. Take a large plant, and invert it over some receptacle, and it will yield from eight ounces to a quart of cold water, clear and bright. This water is found in it constantly: they do not derive it from the rain, for it is as plentiful after a long drought as it is in moist weather. The constant breeze blowing through the plant keeps the water cold, — cold almost as ice-water. This plant, you may well imagine, is the hunter's favorite; for after a long, dry day's travel after game, when he finds one of these plants, he is sure to find a drink of cool, pure water. I have seen them growing in the arid sandy scrub where no water could be found for miles; yet these plants contained a full supply. I have enjoyed them many times, lying beneath a shady live-oak, after a day of travel through hot scrubs peculiar to Florida, where a tree or bush higher than eight feet could not be seen.

"The air-plant has no choice where it grows, provided it receives its regular supply of nourishment, air, and water. It is as often found on a dead tree as on a live one. It will grow on a planed board, if tightly bound to it; but it much prefers some irregular surface, where its coarse roots may catch hold in the crevices and irregularities. It would live in the Northern States with care; for it is very hardy: frosts (light frosts) never kill them. On the approach of winter, the color of the air-plant changes from a whitish-green to a beautiful maroon or purple, and the leaves fold closer together. So hardy and so indifferent is this plant as to its place of growth, that it is often found lying on the ground, and lives there as well as in a tree-top. It is hard to kill one of them. You can dry them to death, but can seldom mutilate one so that it will die.

"We have two other varieties of air-plant worthy of notice as curiosities, — the grassy air-plant and the bulbous-rooted air-plant. The first-named is rather scarce, and presents the appearance of a tuft of large-bladed grass, deep green and thick-leaved: it bears flowers and seeds. It presents quite a unique appearance, and is most beautiful in a hanging-basket.

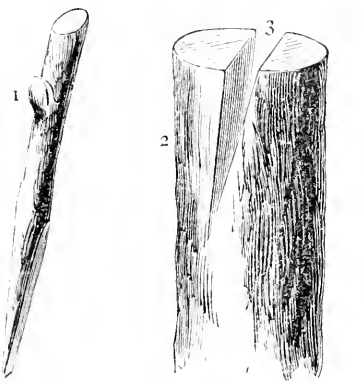
"The bulbous air-plant is rather more plentiful than the grassy variety, but still quite scarce. Its appearance is not unlike enlarged cives. It has a bulb independent of its roots, about the size of a hickory-nut, and a few long, flat leaves. This bulb is a receptacle of all the nourishment the

plant receives during the winter and spring months; and in the spring and summer it sends forth a little spike of bloom, which rapidly exhausts the bulbous portion of the plant. You can see it daily dwindle; and, by the time the seed ripens, it is a mere shrivelled stem. It again draws nourishment from the air and moisture, and performs year after year the same routine: they seldom or never shed the leaves. The flowers are quite brilliant, and look much like an orchid.

"This family of plants is well worthy the attention of the botanist, the amateur, and the florist; and I predict that ere long they will become quite well known and highly prized. Surely they are as handsome in appearance as any of our foliage plants; and, if they receive the same care that these choice exotics do, they will repay well the trouble. Nothing could be finer or more attractive than one of these magnificent six-foot gigantic air-plants in a conservatory."

GRAFTING THE VINE.

When the vines have grown two or three or even six feet of young wood, cut off the vines a foot, two feet, or even six feet, from the ground, accord-



No. 1, graft. No. 2, stock. No. 3, a wedge-shaped piece cut out to correspond with that of the graft.

ing to the age and size of the vine; smooth the stock with a sharp knife;

prepare the scion as represented in the rough sketch, as well as the cut in the stock, which should be slightly transverse, instead of straight with the grain.

Cement carefully with grafting-wax as done in other grafting. Keep all suckers down; and, although the grafts will commence late, they will still have time to make good growths the same season.

The first Concord that fruited in Pennsylvania was one that was grafted four feet high on a barren vine grafted when in bloom. That vine has flourished and borne abundantly every year since.

I have frequently been offered ten dollars per day, and travelling expenses paid, by those who saw my success at home; but I never had time to accept the offers.

If spared a few years, I may give you some interesting items from this place on the grape subject. *Samuel Miller.*

Bluffton, Mo., April 13, 1868.

[We shall be much indebted to any one who will give us accurate information on the subject of grafting the grape. We feel sure that the immensely vexatious difficulties that now stand in the way of success will be overcome; and then we shall astonish and delight ourselves with the growth that delicate vines like the Rebecca will make when grafted on our tough, vigorous natives. We invite all our subscribers who have had any experience in this matter to let us hear from them. Mr. Miller can lay us under still greater obligations by giving us a brief account of his labors in raising seedling-grapes. — *Ed.*]

FICUS REPENS.

This little plant, called also *Ficus stipulata*, is one of the prettiest things we can grow in a Wardian case. The rootlets cling to the glass, and form a very beautiful and delicate tracery. It is also very serviceable for covering back walls in greenhouses.

PARLOR-PLANTS. — No. I.

Among the hundreds of plants which crowd the greenhouse, there are comparatively few which can be grown to advantage in the parlor.

Yet parlor or window gardening is certainly the most popular of horticultural operations, because it is that which is adapted to the capabilities of the many, and not that which can only be indulged in by the few who can command the necessarily larger means which the construction and care of greenhouses require.

A plant which will grow, flourish, and bloom in the window, which will thrive with little care, and repay that care by healthy foliage and cheerful bloom, is of far greater value than one which will only do well under greenhouse treatment.

Such a plant will always be popular. It may, in time, be scorned by florists, because it is old and common; but the very fact of its recommending itself to the masses is that which will insure its continued cultivation long after a large proportion of costly novelties have, in turn, given place to newer discoveries, and been cast aside into not unfrequently well-merited oblivion. Now, in fact, many plants which we seldom see except in greenhouses succeed perfectly in the parlor; and, stranger still, many plants which we commonly see grown in windows never do well under such culture, and utterly refuse to be reconciled to it.

Our purpose in these papers is to describe a few plants, which, with ordinary care, will succeed under window-culture, and to give the proper treatment which each should receive.

The plants suited for this culture are far more numerous than is generally supposed. We can, therefore, only mention comparatively few, and those such as occur most readily to us.

And, first, a few general cultural directions may not be out of place.

Plants in rooms generally suffer from dust, by which the leaves become clogged, and the vital functions of the plant impaired. To remedy this, it is only necessary to sponge or syringe the plant as often at least as once a week. The syringing or showering can easily be done in the kitchen sink; the pot being laid on its side, and *both sides* of the leaves thoroughly

wet: a common small water-pot with a fine rose will answer every purpose. Sponging, which is better for plants with hard, glossy foliage, should be done with a soft sponge or a bit of flannel.

In every case where water is applied to a plant, either at roots or branches, it should be of the temperature of the room where the plant grows. Rain-water is preferable to any other; and, where hard water only can be obtained, it should be allowed to stand some hours before being applied to the plants. In sponging, where plants are very dirty, lukewarm water may be used to advantage; but, after the operation, a good showering with colder water should be given. The *soil* used may be much the same for all window-plants, and may be generally described as "good garden-loam:" in this most plants will grow well.

An excellent compost may be made of leaf-mould, well-rotted manure, or old hot-bed and peat,—each one part, with enough sharp sand to keep the soil open.

Drainage is of the first importance; for if the soil becomes wet, sour, and sodden, the plant will not flourish. Broken potsherds are the best materials; though pebbles, charcoal, and many other articles, may be used. As a general rule, every pot should have at least an inch of drainage at the bottom. We make no unguarded statement in saying that very few people know how to *water* plants. The secret is, however, very simple. When you water your plants, do it thoroughly, not administering little driblets by which only the surface is wet, but thoroughly saturate all the earth in the pot. Water thus again when necessary, according to the nature of the plant, and as often as required; but do not allow water to stand in saucers or plates under the pots. Calla-lilies like it; Dutch bulbs will bear it; but to most plants it is a lingering death: therefore allow all water which the earth in the pots will not retain to run off. How are we to do this in the parlor? Simply by growing plants in hollow tables lined with zinc, which have been again and again described in this magazine, and which is the neatest, cleanest, and prettiest way of growing parlor-plants.

If we cannot do this, empty all water out of the saucers.

Air is of vital importance. Many plants are roasted to death. On every fine day, or whenever air above freezing can be admitted, thoroughly ventilate the room; but be careful no cold draught blows over the plants.

Vegetable as well as animal organizations breathe; and the air of many "living-rooms" and parlors is rank poison. Plants are delicate, and soon show the effects. On man the poison acts more slowly, but not less surely.

Gas is always injurious to plants; and, from all burners, more or less passes unconsumed into the atmosphere: therefore, if possible, grow your plants in rooms which are not gas-lighted. The plants which are not injured by gas are very few in number.

Furnace-heat is injurious only because it is usually very dry, and almost always impregnated with escaped gases. Evaporate plenty of water, and see that the furnace is tight, and your plants will not suffer.

Plenty of *light* should be given; and plants in windows should be frequently turned, lest they become drawn and one-sided. The morning sun is better than the afternoon; and the more sun, the better.

The surface of the soil in the pots should be frequently stirred, as the aeration thus produced contributes to the health of the plant.

Worms should not be allowed in the pots. They may be removed by turning the pot upside down, and giving the edge a sharp stroke, when the ball may be removed from the pot, and the worms, which will usually be found on the outside of the ball, may be picked out. Watering with weak lime-water will usually make the worms come to the surface, and is not injurious to the plants.

Insects seldom trouble plants that are washed or syringed once a week. All are easily removed, — the green-fly, or aphis, by smoking with tobacco; mealy-bug, and the various kinds of scale, by washing; and red spider, by syringing.

So much for general treatment; but our list of plants and special cultural directions must be delayed until our next number.

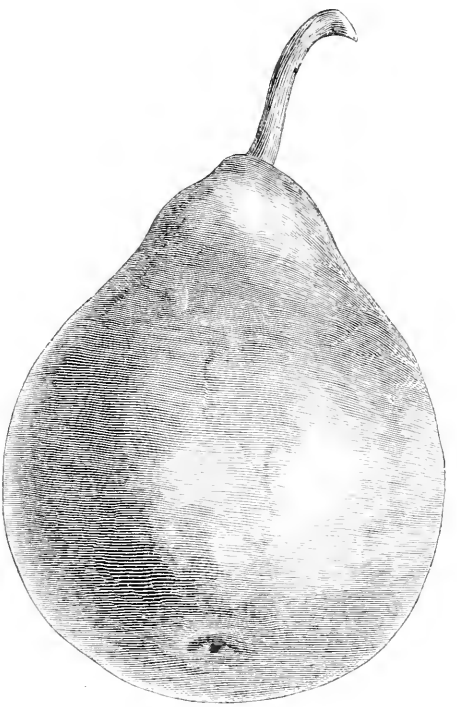
E. S. R., Jun.

Glen Ridge, November, 1868.

THE ISABELLA PEAR.

This seedling was fruited, in the garden of Dr. S. A. Shurtleff of Brookline, in 1866.

The tree is a thrifty, upright grower, with smooth, light-gray bark, and very regular outline. Scions grafted last year took readily, and made fine growth. Fruit in form turbinate, with a clean, depressed calyx; skin



smooth, light green in color, inclining to red on the sunny side; size, long diameter three and a half inches, short diameter two and a half inches. The specimen from which the accompanying drawing was made was very small; it being the only one remaining of this year's crop.

Flesh delicate white to the core, without grit, being juicy, with a sprightly, agreeable flavor. Ripe about the middle of October, and is in eating about four weeks.

This pear has improved greatly both in size and flavor during its first two years. It is much esteemed by its originator; and, as it has this season received the unqualified praise of our best pomologists, it is unhesitatingly recommended to the attention of the connoisseur as well as to growers for market.

HEPATICAS.

THERE is no more brilliant sight in early spring than a clump of the double hepaticas. In form, the flower is perfection, perfectly imbricate, and double as the finest camellia. We hardly know whether to prefer the blue or the red: both are lovely; and, if our fancy rather tends to the blue, it is because we have fewer plants of it.

It would be impossible to have too many double hepaticas; for there is no spring-flower superior to them. *Hepatica angulosa*, our latest acquisition, is a species with single flowers, but blooms freely, is very showy and hardy, and most desirable.

CYCLAMEN PERSICUM.

WHAT a charming plant is this for window-culture! Indeed, we know of none possessing so many admirable qualities. Of neat, often showy foliage, low, close habit, seldom subject to disease, and never to the attacks of insects, even if it never bloomed, it would prove attractive; but when we add to all this the beauty and fragrance of the neat, pure white or rosy-tipped flowers, we have a combination of beauty which we cannot find elsewhere. The plant is of the easiest culture, growing freely in common soil, and blooms in winter.

BONNET-GOURD.

One of the most interesting and probably useful members of the family of Cucurbitaceæ, and one but little known, is the bonnet-gourd, a peculiarly interesting gourd, and one so new, that it is worthy of a place in every garden, whether cultivated for its graceful and handsome foliage, its rich-colored flowers, or its curious fruit.

This gourd is a rampant grower, making a vine running from twenty-five to thirty feet, somewhat sharply five-angled, well foliaged with dark-green leaves of a peculiar glinting or metallic green. Its leaves are three to five lobed, six to nine inches in diameter, smooth above, lighter colored beneath, and covered with short bristles. The flowers are axillary, in long spikes, or racemes, male and female flowers on same spike, of a deep, rich chrome-yellow, three and a half to four inches in diameter, five-petaled, calyx five-parted, and the petals obovate. The flower throws open its rich bloom in strong sunlight, being entirely opposite in this respect to many other members of this family; and, when in full bloom, produces quite a beautiful effect. The fruit is three-celled, twenty-four to twenty-six inches long, somewhat triangular in shape, deeply furrowed by ten longitudinal stripes, or furrows, elongated, or club-shaped; gradually swelling from the stem to about two-thirds or three-fourths of its length, then abruptly tapering to a point: its largest diameter is about from four and a half to five inches. The color of the fruit is dark green when in an unripe state, but rapidly changes to a yellowish-green, or bronze, when ripening. It changes in color, like the Hubbard Squash. Sometimes it is bent, but generally straight. At times, it has well-marked white streaks. The vine is quite prolific, from fifteen to twenty fruit being produced to a plant when grown in rich ground. The fruit, in its ripe state, consists of a thin, brittle shell, hardly thicker than good wrapping-paper, a number of black, flat, oval-shaped seeds, covered with a thin, transparent membrane resembling gold-beater's skin, and a peculiar white membrane, soft and pliable, and very strong. This membrane is an interlaced mass of fibres resembling knitted goods. In its unripe state, this gourd is said to be edible, and can be used like egg-plants. It resembles a cucumber very much, being quite fleshy. The seeds are numerous,

two hundred of them making an ounce; and they are said to keep for a number of years.

The principal use of this gourd is for the curious membrane of fibrous material, which, no doubt, can be used in the arts. It has been used in the manufacture of a kind of bonnet, or opera-hood, whence its name "Bonnet-Gourd;" and, from its snowy-white color and curious appearance, is quite a novelty. It has been used for washing-purposes; has even descended to the kitchen, and has been used for washing dishes; whence it derives its synonyme, "Dish-cloth Gourd." For any washing-purposes, it cannot be excelled, as it is soft and pliable in water like a sponge. It is perfectly clean and nice, and will last for years. As a substitute for hair-gloves for frictional purposes, it has no equal; and by many it may be considered superior to hair. For washing the skin, it is better than any thing we now have; and those using it need never wish for a Turkish bath, so well does it perform its office.

This membrane is so light and strong, that no doubt it could be applied to many uses. It would make good strong rope and paper and twine. It could be used to stuff mattresses, cushions, and pillows; and is even susceptible of being used by ladies as an article of dress.

The bonnet-gourd will grow on almost any soil, but prefers a rich, sandy loam, with plenty of organic matter and well-decomposed manure. Its roots extend to a great distance; and those who depend on manuring in the hill cannot succeed in raising it. It requires no culture save keeping the grass from about its roots, but demands plenty of moisture. In planting, it is best to start the seed in a hot-bed as early as possible in the spring; and, as it makes but little growth until the sun shines down fiercely, it can remain in the hot-bed until very late in the spring, when, if started in pots, it should be shifted to a suitable place, and kept well watered for a few days, shading from hot sun. It should be planted near some object that it can climb on, as lattice-work and fencing; and but one plant should be allowed to every four or six feet of fencing or lattice-work. The ground near the young plant may be spaded or hoed until the gourd throws out its strong lateral roots, when it must not again be disturbed. Plenty of manure-water will start it ahead. It sends up one main stalk, which often attains an inch and a half in diameter, and from this some ten or twenty

laterals. The same insects which infest cucumber and squash vines attack the gourd. Sulphur sprinkled lightly on it will rid it of its troublesome pests. It flowers in June, and continues to do so until frost. Fruit ripens in September and October. The finest membranes are taken from fruit not fully ripe.

H. G. Lungren, M. D.

VOLUSIA, FLA.

A FEW GOOD DUTCH BULBS FOR THE PARLOR.

THE novice, on receiving the bulb-catalogue of a florist, is as much puzzled what to choose for the dozen pots in his parlor-window as the tyro in pear-growing, with quarter of an acre at command, which varieties to select, with hundreds to choose from. Of hyacinths, we have lists comprising many hundred varieties in various shades of color. Some of these are only suitable for garden-culture, some do better in the house, while others will thrive under either treatment. As a general rule, the single varieties are best suited for parlor-culture.

Again: comparatively few varieties are suitable for growing in water, while all will do comparatively well planted in earth. Thus the novice planting a dozen hyacinths selected indiscriminately, and planting them in bulb-glasses, will be fortunate if one out of the whole twelve gives him a good flower.

The season of blooming must be also considered; some varieties blooming very early, others very late.

Suppose we wish a good selection of hyacinths for parlor-culture, part for earth, and part for water, which shall we choose?

For house-culture, the early-blooming varieties are most suitable; though, for succession, a few of the others may be grown to advantage. The following list comprises fine varieties which will give satisfaction: —

MRS. BEECHER STOWE is a dark-red single hyacinth, with a fine spike and large bells; forces well, and is suitable for culture in water or earth.

ARGUS is a single dark blue, with fine eye; large, well-formed spike; forces well in earth or water.

LA NUIT, color black; a fine variety for house-culture.

Victoria Alexandrina, fine deep red; an excellent show-variety; forces well.

Grand Vedette, single white, producing a long spike of large white bells.

Mirandolina is another single white, with a rather close spike of large bells.

Amy and Diebitsh Sabalkanski are deep-red varieties, which force well and have the advantage of being very cheap.

Belle Corinne and Homerus are old but good red varieties.

L'Ornament de la Nature is fine pink striped.

L'Amie du Cœur is a good lilac variety, early, and suitable for pot or glass culture.

Emicus, creamy white, is cheap and good; always throwing a fine spike.

Alba Maxima is good, pure white.

König Von Holland is a very good variety, easily forced; color buff, changing to red.

La Citronnière is pale yellow, and a good variety for parlor-culture.

Regulus and Voltaire are old and cheap varieties, but are well adapted for forcing; color light blue.

All the above are single varieties; all are early; and, in selecting from them, one can hardly make a mistake.

If, however, we were called upon to select a dozen fine hyacinths, generally of moderate cost, for parlor-culture and succession-bloom, we should choose

Single Red. — Gigantea, Macaulay (fine rose with white centre), Mrs. Stowe, Victoria Alexandrina.

Single White. — Madame Van der Hoop (large fine bells), Mont Blanc, Paix de la Europe, Tubiflora (blush).

Single Blue. — Charles Dickens, Argus, Grand Lilas, Baron Von Tuyll.

Single Black. — Prince Albert, La Nuit.

Single Yellow. — Liberia, Ida; both very fine, but as yet rather expensive.

For double hyacinths which are early, and do well in earth, with house-culture, and moderately well in glasses, we select

Red, Rose, or *Crimson.* — Eclipse, Paxton, Alida Catharina, Prince of Orange, Regina Victoria.

Pink. — Grootvorst, Le Grand Concurrent.

White. — A la Mode, La Tour d'Auvergne, Triomphe Blandina.

Yellow. — Goethe, Lady Sale.

Blue. — Garrick, Louis Philippe, Robert Burns, Van Speyk, Blocksberg.

These double varieties, with care, will do well. Of all, however, the whites are the least adapted for water-culture.

Next to the hyacinth, the narcissus is the most suitable bulb for parlor-culture. It may be grown in earth or water; but the former culture will give more satisfaction. We annually plant as many narcissus as hyacinths. For early blooming, there is nothing so good as the *Double Roman*. The flower is rather confused; but, if planted in October, it blooms before Christmas, and is showy and fragrant. Next in season of bloom is *Gloriosa*, white with yellow cup; and, to succeed these, we have *Bazlman major* and *minor*, both white with yellow cup; *Grand Monarque* and *Grand Primo*, white with citron cup; and *Soleil d'Or*, yellow with orange cup. These are cheap, and give a good variety. If, however, we wish a larger and more expensive collection, we may add *Luna* and *Queen of Netherlands*, both fine whites; *Newton* and *Queen Victoria*, yellow; and *Souvenir de Haarlem*, white and lemon.

We must not forget to plant a few dozen jonquils, which bloom with little trouble, last long in perfection, and are gay and showy. *Narcissus dubius* is a fine white variety, very pretty and fragrant. A few pans of crocus of various colors are often very effective; and a good contrast of color may be had from pots planted with the red, yellow, and white Duc Von Thol tulips.

Iris Persica is a sparkling little gem, and forces well; and *Bulbocodium vernum*, the Roman hyacinth, and the early blooming *Scillas*, are very pretty and desirable.

Any of these may be planted as late as the first of January, and will bloom long before the snow has melted.

Our parlor bulb-cases are a mass of bloom, from December until the snowdrop and crocus open in the spring sunshine, in the bulb-beds under the southern windows; and the care required is very slight when compared with the satisfaction afforded. *E. S. R., Jun.*

Glen Ridge, December, 1868.

WORCESTER'S SEEDLING.

THE potato which we figure in this number of the Journal is not presented to our readers as a new variety, but as one, which, although known for some time, has not until recently been brought forward so prominently as it great merits deserve.

It is said to have been originated some years ago by the Rev. Thomas Worcester of Boston; and has been cultivated under different names in various places, always maintaining a high reputation, but never having succeeded in getting its just dues until the present season.

A gentleman who had raised this potato, induced by his own high opinion of its value, and the united testimony of all who had tried it, challenged a trial of this variety with any seedling, old or new, from any part of the Union. The challenge was accepted by various parties; and, at the annual dinner of the committees of the Massachusetts Horticultural Society at the Parker House, — at which dinner many distinguished amateurs and professional horticulturists were present, — the Worcester's Seedling was brought into competition with several of the best varieties known. Among these were the Early Rose, and many other kinds considered the best by their respec-

tive friends; but it was the unanimous decision of those present that the Worcester was the best table-potato offered. It proved to be very dry and mealy, of the most delicate flavor, free from any earthy taste, and of fair size. Its form is inclined to roundish, color light pink, skin thin, eyes deep, and flesh very white. One of its good traits is that it will be found dry and of fair quality when only two-thirds grown.

It has stood the attacks of disease much better than very many other kinds. Its yield varies according to the season. It prefers and always does better in a rather damp or meadow soil. The vines are upright in growth, rank on rich soil, with the tubers generally close to the stem. In planting, it is best to cut the potatoes to single eyes.

The specimen we figure above was one of a lot of sound, healthy potatoes, dug Nov. 1 from a meadow soil, where other varieties were more or less affected with disease.

To perfect its growth, the Worcester Seedling requires the full season.

TIGER-FLOWERS.

THIS pretty plant (*Tigridia*) is not so much grown as its merits deserve. Though a native of Mexico, it is of the easiest culture as a summer-blooming bulb, requiring to be planted in good soil about the middle of May, and taken up after the first frost. The best way to preserve the roots is to tie the plants in a bunch, and hang them up in a frost-proof cellar.

The species are *T. pavonia* with scarlet flowers, *T. conchiflora* with yellow, *T. speciosa* with brick-red, a hybrid between the two species, but resembling *T. pavonia* and *T. Wheelerii*, also a hybrid, but resembling *T. conchiflora*. The plant sometimes sold as a blue tiger-flower is not a *Tigridia*, but *Phalocallis plumbea*.

To the Editor of "The American Journal of Horticulture and Florist's Companion."

Sir, — In what I write, you of course understand that I can only endeavor to give you a slight account of some things that may more particularly fall under my notice, — accounts necessarily superficial and imperfect, and sometimes, I fear, erroneous. But to attempt more would, I feel, be beyond the compass of my opportunities and ability. No country that I have visited has more completely falsified my previous conceptions of it than Spain (whence I have recently returned), both as regards its moral as well as its physical characteristics. I cannot very well define what those conceptions were, or how obtained. Of Spain I knew but little ; such information as I had being derived from reading occasionally a volume of travels, perhaps a romance of which it was the scene, and current articles from the journals of the day : but in some way I had received an impression that Spain was the one country over which the sun had stood still, where modes of thought and habits of action had remained unchanged, and where men thought and acted as their fathers and grandfathers had before them for generations. True, I knew that wars had ravaged it, that great political convulsions had occurred, and that its institutions had been somewhat modified or changed, but all, as I supposed, without essentially affecting the life of its people ; and so I believe that I expected to find that the Spain of to-day was the Spain of the time of Cervantes, and that Don Quixote and Gil Blas were as true pictures of its actual condition as of the times they were intended to depict. Yet, pre-occupied with such fancy, I failed to meet with any striking warrant of the justice of my previous conception. Peculiarities were, of course, noticeable, — peculiarities of costume, of manners and customs ; but such, and such only, as in all cases help to individualize a nation without making of it a separate

people. Perhaps, had I by mule-path or foot-path penetrated more into the interior of the country, it might have been different: but as I passed over many of the great routes of intercommunication, stopping in the cities, and saw the people occupied in the fields and workshops, or engaged in the traffic of the streets, I failed to observe any of those peculiarities that I had been led to expect, and such as mark a low state of civilization; and this not among the well-to-do classes only (for such in all nations are very much the same), but among the peasantry and laborers, truer types of national character. It may be and probably is true, that Spain has not made the same progress as some other European States. The same evidence of an advanced state of the arts and sciences, of commercial enterprise and activity, of scientific agriculture, of skill in mechanical and other industrial pursuits, that meets one everywhere in France as soon as the frontier is passed, would be sought in vain in Spain. But it is hardly fair to compare the reported most backward with the acknowledged most advanced of European nations; and all that I intend to say is, that to the passing traveller there is nothing to prove any essential difference between Spaniards and the people of some other parts of Southern Europe. So, too, with respect to the country: I found that my previous conceptions of it were as much at fault as were those with regard to its people. I had formed the idea that Spain consisted mainly of chains of mountains, of high wind-swept table-lands, and broad arid plains destitute of verdure, and unfit for cultivation. And this idea was not wholly incorrect; for besides the chain of the Pyrenees that separates it from France, and the hills that on the south follow the shores of the Mediterranean, various ranges of mountains intersect its territory in different directions. Aragon seems one great table-land; and, in old Castile, the wide corn-producing plains extend for more than a hundred miles in length. But the mistake was in supposing that much of it was but barrenness and desolation. Instead of this, I found, as it seemed to me, if not a land flowing with milk and honey, one that at least presented more than the usual average amount of fertile soil, although the advantages afforded by this natural fertility had failed to be improved. Of the mountain-chains, some are barren rocks destitute of vegetation; while others are capable of cultivation on their lower slopes, if not to their very summits; and still others are covered with forests: among them, too, are scattered fertile valleys, that not unfrequently swell out into broad plains. A large proportion of the high table-lands seems fit for cultivation, and the broad plains appear to be well adapted to the production of the cereals and other crops. Indeed, it appeared to me that good tilth and a judicious system were alone wanting to again make Spain as productive as it is said to have been under the Romans. One of the greatest if not the only real obstacle to successful agriculture, is, I should think, the want of water. The climate is hot and dry. In winter, there is some wet weather; but, after March, but little rain falls, except occasionally in a shower. This renders irrigation or some artificial means of supplying water in some parts of the country necessary. Irrigation was largely practised by the Moors when they possessed the country; and, in some instances, the present possessors of the soil make use of the means they provided to secure a supply of the needed

element. With a supply of water, it seemed to me that every thing could be grown in Spain that is to be found in temperate regions, and very many of the products of the tropics. Under the Moors, the Vega, as the plain that surrounds Grenada was called, bounded and encircled by high hills, having on its eastern side the chain of the Sierra Nevada, covered with perpetual snow to temper its great heat, and furnish a never-failing supply of water to the Daru and Genil that flow through it, and provide the means of irrigation, highly cultivated and covered with luxuriant vegetation, is represented to have been a terrestrial paradise; and its actual appearance in the hands of its present possessors, who are not wholly neglectful of the practices of its Moorish owners, show that the encomiums bestowed on its charms and beauty were fully justified, and were not merely the language of Eastern hyperbole. Spain may be said to be in an eminent degree an agricultural country, and to possess great agricultural capabilities; but it requires those capabilities to be developed much more perfectly than at present to take its proper place as a food-producing one. The instruments used in farming are of the rudest and most inferior description. The plough in common use is merely a hooked limb of a tree, shod with iron, that can but scratch the surface; and attempts to introduce improved tools have thus far failed. Nations, like individuals, are apt to become so wedded to old habits as to strenuously resist any change, even when proved to be for the better. In farming, I suppose that some system of rotation is pursued; although what it may be, I cannot say. From the fact that portions of the land bare of crops, recently ploughed, or undergoing that operation, were constantly met with, it seemed to me that possibly a year of naked fallow was a part of the rotation. The crops mostly cultivated are those generally grown in temperate climates, — corn, or cereals of different kinds, and the common culinary vegetables. Vegetables or roots, I think, are grown only for the table, and not as food for cattle; at least, I have never noticed them cultivated to any great extent, unless it might be what I supposed a small, low-growing pea, fields of which I frequently observed. The quality of the wheat raised appears to be very good, if bread made from it is a proof. Bad bread is an exception in Spain, and not the rule: the bread is universally good. The old mode of treading out the corn is usually practised. I doubt whether there is a threshing or indeed any agricultural machine in use in Spain; at all events, I never saw any. Reaping is all done by the hand, with the sickle. Little or no grass is cut for hay; and animals are fed on chopped straw. In the south of Spain some sugar-cane is raised, and at Malaga there is a manufactory for the making of sugar: there, too, the date-palm is somewhat cultivated (especially near Alicante, where there is a large grove of them), and also the prickly pear, both for the sake of their fruit. The hillsides unsuited to other culture are sometimes covered with this last-named plant, growing six or eight feet high, and spreading out into a large bush. But, next to corn, the cultivation of grapes must be much the most important. Grapes are grown in almost all parts of Spain, and in almost all soils and situations, — on the hillsides and on the level plains, generally in soil that seemed a reddish-colored loam; but, on one occasion, I noticed them growing in what appeared to be pure sand. The vines appeared to be vigorous and healthy. The mode of training pursued is

different from what I have observed as usual in Europe; the vines not being staked, but cut very low, and permitted to run on the ground. Grapes are grown for the making of wine, and for use as fruit. Near Malaga, along the shore of the Mediterranean, is a long extent of rounded or perhaps cone-shaped high hills, of a reddish-colored gravelly loam: these hills are covered with vineyards, and from the grapes there grown are made what is widely known in commerce as Malaga raisins, as well as a large quantity of wine both sweet and dry. To the west of Malaga, near the Atlantic coast at Jerez, in what is one of the hottest parts of Spain, are grown the grapes from which is made what is known as Sherry wine. The vines cultivated about Jerez are of several varieties; and the wine made from them is of two sorts, — sweet and dry; both these also being of two or three different varieties. The sweet Jerez wine is of a rich brown color, of a rich, luscious sweetness, with a good deal of flavor: the dry is of a pale straw-color, with a strong aroma; some varieties having a decided almond flavor, from which others are wholly free. None of these wines are used until four or five years old; and then by mixing together the different kinds, sweet and dry, and those of different ages (some very old wine being always kept for the purpose), with the addition of a small quantity of brandy, is prepared the Sherry wine of commerce. I suspect very little Sherry wine is consumed in Spain; it is all prepared for the English market: and the manufacturers, by the use of a greater or less quantity of some particular kind of wine in the preparation, are able to adapt it to the taste of their customers. In this part of Spain, too, are made the Manzanilla and Montilla, both light-colored, dry, high-flavored wines, somewhat of the same character as some of those made at Jerez. In Spain, the common wines of the country, the *vin ordinaire*, seemed to me especially good, particularly the common red wine of Catalonia and Aragon. South of Madrid, there is made a wine called — probably from the name of the town, where there are large vineyards that produce it — the Valdepenas, that is most generally used and esteemed. The Valdepenas wine is of two kinds, — red and white: they are both good, full-bodied, high-flavored wines, to my taste having a good deal of resemblance to some of the Burgundy wines, especially the white, that seemed to me very like Chablis. If it be true, as has been stated, that the vines from which they are made came originally from Burgundy, it accounts for the resemblance. Some of the principal characteristics of the Spanish wines are fulness of body, high flavor, no acidity, and apparently a good deal of spirit; all perhaps caused by the hot climate and great heat of the sun, bringing the fruit to perfect maturity: their strength, perhaps, may make some of them objectionable as table-wines. The common wines of the country seemed to me to be so good, that I cannot but think that if there were the same science and skill in their manufacture, the same care in selecting and sorting the grapes, as are practised in France, some of the Spanish wines would be brought into competition with the fine wines of Burgundy and Bordeaux. Oranges and lemons are largely cultivated along the Mediterranean coast: they are very fine. Seville oranges have a wide renown: the trees attain a great age. Some were pointed out to me as being more than six hundred years old; their origin dating back to the time of the Moors. Another very important cultivation is that of the olive, of which there

are very large plantations about Cordova, Grenada, and Seville, where the tree seems to grow luxuriantly. It seemed to me that such as I noticed were there more vigorous and finer than any that I had before seen. A good many of the olives, as they grow very large, are pickled ; and a good many are pressed for oil : unfortunately, for the want of sufficient care, or other cause, the oil is apt to become rancid, and is inferior to the French. Rice and cotton are grown, but, I think, not to any great extent. The culture of rice is exceedingly unhealthy, although profitable ; and it is on that account hardly desirable that it should be extended. This, perhaps, will be sufficient, without attempting to enumerate all the articles that receive attention, to give you some general idea of the agriculture of Spain, whose products might, as it seems to me, with her warm climate, light, fertile, easily-worked soil, be almost indefinitely extended if science and skill could be applied to their full and perfect development ; and that in this, and the working of the mines, and quarries of the finest marbles, she would find sources of greater wealth than she possessed when she had under her control the gold and silver of Mexico and Peru.

The Spanish appear to be an exceedingly temperate people ; and the vice of drunkenness can hardly be said to exist, — certainly not to prevail to any extent. The climate is very warm : in the south, frost and snow are almost unknown ; and there can hardly be said to be any winter. The central part of the kingdom is a high plateau, the city of Madrid being some twenty-five hundred feet above the sea : yet even there, although the cutting, icy winds from the mountains are severe in winter, the frosts are comparatively slight and of short duration ; green pease planted in November or December being gathered through the winter.

To the traveller passing through Spain, two things are very noticeable. One is the want of population. The country does not appear half peopled. One travels for miles on miles over the broad plains, often without seeing scarcely a habitation or a human being. As the people live generally in towns or villages, which railroads rather avoid than pass through, this, perhaps, explains in part, although I think not fully, the apparent paucity of inhabitants. The other noticeable fact is the extreme cleanliness of the towns ; both houses and streets appearing in this respect in strong and favorable contrast with some other parts of Europe. There is, however, one unpleasant side to the picture ; and that is, there appears to be a good deal of poverty and misery.

Spain is very destitute of trees. On the mountains are some forests of cork, oak, and other trees that I did not know, and of the stone-pine, with also, especially at the north, groves of fine chestnuts ; but the high table-lands and plains are almost entirely denuded of them. In nearly all the large towns, walks and drives are provided for the enjoyment and recreation of the public ; and these grounds, often of considerable extent, planted with rows of fine trees, elms, a variety resembling the English plane or sycamores that flourish luxuriantly, and acacias of different varieties, become, with their shade and verdure under the fierce sun, oases in a desert.

The Spaniards do not seem very enterprising in introducing new varieties of fruits, or careful in selecting the best. Besides oranges and grapes, already

named, almost all kinds of fruit are cultivated to a greater or less extent; but I can only speak of a few of the early sorts from my own observation. Strawberries, that begin to ripen in April, are very good: a small kind resembling the red-wood is most generally cultivated; although some of the large sorts, both red and white, are also grown. Apricots are plenty. Cherries of two or three varieties are very good. Figs flourish very luxuriantly; and the large purple kind, ripening in early June, are very luscious and sweet. Pears are said to be very good; but I have only seen some of the small early sorts. Apples are also raised, and peaches. The peaches generally grown are clingstone varieties, and not good; but where fine kinds have been obtained, as in Grenada, they are very good. Pomegranates are raised quite extensively; and almonds are, I believe, an article of export.

The flora of Spain is very rich and various. The sides of the roads and fields are strewed with flowers of a great variety of kinds and colors, and generally, as it seemed to me, of more than usually bright and brilliant hues. I do not know enough of botany to be able to identify more than a very few of those that I saw; and of those I can now remember but a part. Among others, I noticed a variety of aloe, throwing up a flower-stalk ten or twelve feet high, with blossoms; and the prickly pear, large bushes in size, some with yellow, and others with orange-colored flowers; both these plants being used for hedges. There was what appeared to be a thistle, with a brilliant blue flower, that I had never before seen, and patches of what I took for heath, some with purple and others with white blossoms. A low plant, whose flower somewhat resembled those of the petunia, the tube in some cases light-purple or pink, in others pure white, with, in still other cases, the white flower having on its edge a deep border of bright blue, was very common; and a tall-growing broom with yellow flowers was frequently met with. What is called the caper-plant bears a flower having some resemblance to the passion-flower. Among shrubs, the pomegranates, often small trees in size, covered with scarlet blossoms, and the oleanders, with crimson flowers, often seen in waste places, were quite conspicuous, as were many others to which I now can but thus briefly allude.

A good deal of the scenery of Spain is dull. The broad, wide, treeless plains, almost destitute of life, with only occasionally a flock of sheep, or herd of cattle, watched by its shepherd or herdsman, seem melancholy and dreary. Yet such is not always the character of its scenery: occasionally, particularly in mountainous regions, some that is wild and picturesque may be met with. In the Basque provinces, along or among the lower range of the Pyrenees, the high hills having on their crests the naked rock, thrown up sometimes in peaks or minarets, at others in a continuous wall like the ramparts of a fortress, and the lower ones covered with forests to the summits, groves of fine chestnuts, long, smooth, grassy slopes, and broad, fertile, cultivated valleys, with towns and villages, often combine to form landscapes whose beauty can hardly fail to gratify the most fastidious taste.

Spain has not, then, as I had perhaps foolishly imagined, been free from change: the influences everywhere operating have not been wholly without effect there. Here, as elsewhere, the last remains of feudalism, and the insti-

tutions of chivalry, have disappeared ; the traditional Spaniard of the drama and novel, of high punctilious honor, and of grave and stately courtesy, if he ever existed, has played his part, and made his final exit from the stage ; railroads have pierced the land in all directions, destroying its comparative isolation, and assimilating its people to those around them : and although much of the romance of a journey there has thus been destroyed, yet still numerous attractions remain ; and in its Gaulish, Moorish, and mediæval remains, in its grand old cathedrals, and its galleries of paintings, among the best, if not the best, in the world, the traveller there will find much to interest him, and occupy his time and attention.

PARIS, July 9, 1868. *Joseph S. Cabot.*

LILIUM AURATUM. — As growers of this lily are again recording the blooming powers of their plants, you may be interested to learn something about the present state of the one about which I wrote to you in 1866 and 1867. It now occupies a pot measuring twenty-four inches in diameter. The old bulb threw up three stems, which are now about eight feet six inches in height, and are bearing respectively eighty-one, thirty-four, and twenty-eight flower-buds.

Besides these, there are four small offset-stems bearing eight flowers ; making a total of a hundred and fifty-one. The flowers already expanded measure from nine to ten inches in diameter. — *W. Cross, in Gardener's Chronicle.*

James Bland, Esq., Quarry Bank, Allerton, near Liverpool, has a plant of this lily, which I think may be considered the finest in the county. It is in a sixteen-inch pot, and has five large stems from seven feet six inches to eight feet high : three of these have seventeen flowers each, and the other two fifteen each. There are also nine smaller stems from three feet to four feet in height, bearing amongst them nineteen flowers ; the whole making exactly a hundred flowers, several of which measure thirteen inches across. — *Thomas Davies, Jun., in Gardener's Chronicle.*

RIPE WOOD *vs.* GREEN WOOD FOR LAYERS. — A. M. Burns of Manhattan, Kan., says that there is one thing that he professes to know something about, and thinks that it will apply to all localities ; and that is the difference between the best grape-vine plants and poor ones. We have in the West some who openly advocate the propagation of grape-vine plants from green wood of the present season's growth. They say that the roots are more easily emitted from green than from ripe wood. The best argument that he can advance to prove that they are not as good as old-wood layers is to state, that, in 1859, he planted twenty-eight Clintons : all propagated alike ; but some were from one-year-old wood, and others from green wood. Those produced from green wood are all dead but two, while those propagated from the year-old wood are healthy and vigorous. The two vines from green wood are weak and sickly. — *Western Rural.*

[We have always had a prejudice against plants from green wood ; but we do not see that the result of Mr. Burns's experiment is decisive. An experiment in a single season, with so few as twenty-eight vines, decides nothing at all. Mr. George W. Campbell of Delaware, O., has been very successful, we believe, in raising very fine, well-ripened plants from green wood. — *Ed.*]

A New Fertilizer for Grapes. — "The California Farmer" says, "Some two years since, we spoke of a system practised by some scientific growers, of enriching their vineyards by cutting into fine bits the spring-prunings, and ploughing in the same, thus returning the needed material for manuring the vine.

"We have seen this experiment carefully and successfully tried, and have seen its good results; which is the keeping the soil light and porous, and giving to the vineyard a wholesome look and a heavy crop.

"We hope those vine-growers that have been in the habit of burning up their grape-wood, or carting it off, will hereafter chop up the wood finely, and plough it in deeply, and they will find their vineyards very greatly benefited thereby."

New Mode of destroying Wasps. — Wasps have been rather plentiful. I have for several years adopted a very simple but very effectual plan of getting rid of their nests. When I find a nest, I select the noon of a hot sunny day for my operations. I procure a very strong solution of cyanide of potassium, and saturate a piece of lint about three or four inches square with the solution. This lint I quietly place at the outlet of the hole leading to the nest on the ground, in a bank or elsewhere. Nothing more is requisite. Every wasp that arrives at the hole, on its descent alights on the lint, and, after one or two gyrations, drops over the edge of the lint into the hole, dead, or else dies upon the lint: not one escapes. After sitting down by the side, watching the operation for about ten or fifteen minutes at most, the number of wasps arriving home becomes very much lessened, and then only a few odd ones arrive. I then dig out the nest. All are destroyed. There is no fuss, no risk of being stung, as every wasp coming home falls on the fatal lint, and has no escape. The evaporation of the cyanide is very rapid; and the air all around the hole is tainted, and the wasps seem fascinated by it, as I never see any turn away: they look as if they must settle; and, when once they alight, they have no power to raise themselves, the use of the wings is gone, and they are soon dead from the inhalation of the cyanide.

This is a very simple way of destroying the nest, because, if you do not wish to take the nest, you may leave the lint there: it will destroy all the nest, and will do no harm to any thing else.

When the nest is in a tree, I generally go in the evening, and hold the lint soaked in the cyanide under the bottom hole. The wasps soon begin to drop out, first one by one, then in a regular shower. Of course, caution must be used to avoid the inhalation of the cyanide; but, as so little is required, it is not very probable any accident will result from the proceeding. — *Cor. in Journal of Horticulture.*

[The method given above is feasible enough; but assurance can be made doubly sure by pouring a few drops of strong vinegar upon the cloth after it has been moistened with the cyanide solution. Great care should be taken not to inhale the gas given off; and it should be remembered that cyanide of potassium is a violent poison, its deadly principle being prussic acid. — *Ed.*]

LILIUM AURATUM. — The following notes show what has been done by high culture with this splendid lily. Will any of our florists or amateurs go and do likewise? As we introduced this new lily to cultivation (it having bloomed in the vicinity of Boston before it flowered in England), it is not creditable to be so distanced in perfection of flower.

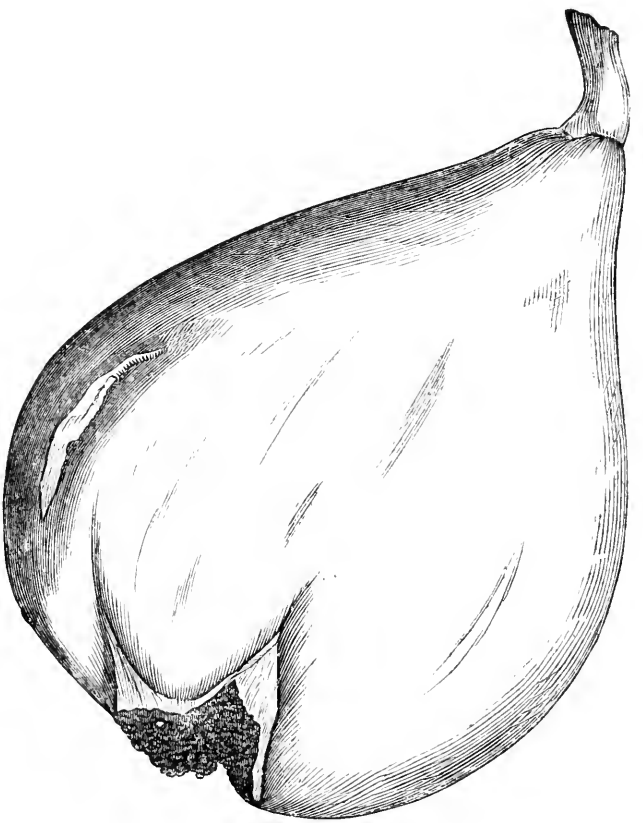
Some very fine examples of this superb lily have been observed during the year 1867. In the garden of Mr. M'Leod, Dalvey, near Forres, a plant has produced six stems from one root, the tallest being upwards of eight feet high. One stem bears nineteen, one eighteen, one sixteen, one eight, one nine, and one four flowers, making in all seventy-four, the flowers all fully expanded, and some of them measuring ten inches across. A plant grown in the garden of Mr. A. Turner, Bowbridge, Leicester, has already won notoriety. This year it is grown in a twenty-inch pot, and has four stems, the highest of which is nine feet six inches high, and has nineteen flowers; the second is eight feet six inches high, divided at top into two parts, on which there is the extraordinary number of sixty-six flowers; the other two stems are four feet and two feet six inches high respectively, and bear one flower each; making a total of eighty-seven flowers. The largest flower measures about one foot in diameter, and is on the highest stem. A still finer plant has been grown in the garden at Melchet Park, Romsey, where a bulb has produced two stems, eight and a half feet high, one of them divided, — these bear one hundred flowers; while a small shoot from the base bears four more; making one hundred and four flowers. At Finedon Hall, on a smaller plant, grown in a five-inch pot, a bloom is recorded as having measured exactly fourteen inches in diameter.

HORSE-RADISH. — This is a very valuable plant; and yet its cultivation has been very much neglected. A few plants may be found about the garden of almost every old homestead, receiving no notice except when some of it is wanted for the table. It will grow in any good soil, but prefers one that is moist and rich. It is very easily propagated from pieces of roots, planted in rows, and covered five or six inches deep. If the land has been well prepared, after the second year's growth it will be fit for use. The large, straight, smooth roots are more valuable for the market, as there is less waste in grating it. The time for using it is during the winter and early spring-months; and it should be taken up in November, placed in the cellar, and covered with earth to keep it moist, and prevent it from shrivelling. It is said to possess healthful qualities, which, added to its agreeable flavor, when eaten in limited quantities with meats, all render it very desirable. Every owner of a garden should be sure and raise enough of it for family use.

ÆTHIONEMA CORDIFOLIUM. — This is one of the best and sweetest of rock and alpine plants; a bed of it in flower looking like a well-flowered mass of the charming *Androsace lanuginosa*, and not rising more than three inches. The flowers are most abundantly produced, and the plant quite hardy and perennial. Nothing could be more suitable for rock-work, or the front edge of a choice mixed border. It seeds freely; and therefore no one will have any difficulty in procuring it.

GROSSE VERTE FIG. — This very excellent fig is one of the largest, handsomest, and richest-flavored varieties in cultivation. Though not new, it was but little known until last year, when it was fruited at Chiswick, and was awarded a first-class certificate.

The fruit is large, roundish ovate or obovate, inclining to pyriform, slightly ribbed, with a short, thick neck, which is sometimes better defined than in the accompanying figure. The stalk is stout, about half an inch in length; the skin is of a lively-green color, smooth and glossy, marked with numerous small round



white dots, changing, when ripe, to a pale greenish-yellow, streaked with russety brown, very thin, and cracks lengthways as the fruit ripens; the flesh is of a bright red throughout, thick, sirupy, and most delicious in flavor; the eye is large and open; the fruit sometimes, when fully grown, either from want of sufficient heat or from too much moisture, splits from the eye into two or three pieces, which curve backwards, thus exposing the bright red interior.

The plant is of stout and robust growth, with large, deep green, moderately-lobed leaves. It is a free-bearing variety, well suited for pot-culture, and ripening rather late in the season.

CALANTHE VESTITA. — Among the many beautiful flowering-plants grown for decorative purposes at the present day, there are few, if any, that rank higher as being really useful and effective for late autumn and winter decoration, whether as pot-plants or as cut-flowers, than *Calanthe vestita* and its varieties. I refer to the deciduous kinds of calanthe only, including *C. Veitchii*, a beautiful mule raised at the Messrs. Veitch's establishment. Their flowering season is from the beginning of November to the end of January, and may be made of much longer duration. There is only one fault that can be urged against them; that is, they lose their foliage about the time they commence to unfold their singularly elegant and showy flowers. As cut-flowers, they are unrivalled. Take, for instance, a spike of each of the varieties enumerated below, put them in a flower-glass in water with fern-fronds, and you have a bouquet at once graceful and beautiful; while each individual flower will be as fresh and perfect in four weeks' time as on the day when it was cut from the plant.

Calanthe vestita is a terrestrial orchid, and is found in the mountain regions of Moulmein, Java, and Burmah. It is of the easiest possible culture; and is, moreover, very free in producing its long, gracefully-pendent flower-spikes, usually two and three from each pseudo-bulb. These flower-spikes are thrown up from the base of the bulbs some weeks before they lose their foliage. Let no amateur despair of cultivating and flowering these plants simply because they belong to the family of orchids, — a reason I have heard assigned for not attempting their culture. Any one having a couple of vineries or a moderately-heated plant-stove has the first essential for growing calanthes successfully. These deciduous calanthes require both a diurnal and an annual rest: during the latter rest, they require to be kept dry. About the beginning of March, or later, according to the length of time they have been at rest, they commence to grow from the base of the bulb; and this is the time to commence their cultivation by repotting them. I grow them in different-sized pots to suit the various purposes for which they are required; putting one bulb in a six-inch pot, three in an eight-inch, five in a nine-inch, and fifteen in a twelve-inch, and so on. In doing this, sufficient space must be left between the bulbs to allow room for the young growths, which can at this time be seen, as well as the direction they are taking. Generally, each bulb makes two growths, — one on each side. Their roots are annual: therefore any old ones that may be left adhering to the bulbs must be cut away.

The compost I find to suit these calanthes is one-half turfy loam cut from an old pasture two inches deep, and used before the fibre is destroyed by long-keeping (it is well to half char this to destroy all vegetable as well as insect life merely), one-fourth old dry cow-dung, and one-fourth good fibry peat, adding a few handfuls of charcoal of the size of walnuts. These ingredients should be mixed well together, and be used in a moderately dry state. In potting, reject the finer portions. Let the pots be perfectly clean and dry, as well as the crocks. Make the drainage as perfect as possible by first laying a hollow crock over the hole, the hollow side downwards, and placing smaller crocks over this to the depth of two inches for the smaller, and three inches or more for the larger pots. Upon this drainage lay a little moss, — a very thin layer, or it will defeat the end

in view; and upon this fill in the compost, the coarser portion at the bottom. Press it down moderately, and then fill in as much compost as the pot will hold; and upon this place the bulbs, with a little silver sand under each, the base resting on the soil, — not sinking in it, — and on a level with the pot-rim. Thrust a small stick into the soil on each side of the bulb, but an inch higher, close to it, but not in the way of the young growth. Tie these sticks together above the bulbs; and this will keep them firm on the soil until they have made roots, when the sticks may be taken away.

When the potting is completed, place the plants in a vinery or plant-stove, well exposed to the light, and not too far from the glass, in a minimum heat of 55° to 60°, maximum 70° to 75°, with a moist atmosphere. They must have but little water until they commence to unfold their foliage; when, from that time until they have completed their growth and their leaves decay in the autumn, they will require water in abundance. The water should always be about the same temperature as the house they are growing in: this is of the greatest importance; as to water any plant growing in a warm house with cold water is, to say the least of it, bad practice. By the middle of July, they will have filled their pots with hungry, healthy roots: and from this stage onwards I give them very weak and clear manure-water about once a week, according to the brightness or dulness of the weather; if bright, clear weather, they will require more, if dull, less of this stimulant. It is safe practice to give four or five waterings with clear water to one of manure-water. Close attention to watering, avoiding extremes, and keeping the plant clear of insects, is all they require until they commence to unfold their flowers; when less water, and a somewhat cooler and dryer atmosphere, will be required until they have done flowering; after which they must be put in some moderately warm place, not higher than 50°, nor lower than 45° (if full to the sun and light, so much the better), and kept quite dry until they commence to grow again the following season, when the routine of practice detailed above must be repeated. The insects to which they are subject are brown and white scale. If allowed to be in too dry an atmosphere, or to want for water, thrips will attack them; but frequent washing with clean warm water will remove these pests.

The above routine of culture is applicable to the following varieties, which may be obtained at very moderate prices: —

C. vestita rubra, white with crimson eye.
C. vestita lutea, white with yellow eye.
C. vestita nivalis, pure white.
C. vestita cuprea, white with bronze eye.
C. vestita Turneri, white with pink eye.
C. Veitchii, rose with white eye.

Florist.

Cultivation of the Achimenes. — The achimenes is not so much grown as it was a few years back, though it is very beautiful as well as very useful for conservatory decoration. I trust, therefore, that the following hints may induce many cultivators again to adopt it for this purpose.

It is very easily managed. The tubers should be kept at rest through the winter in the pans in which they have bloomed, and the first batch started about the middle of February, selecting those which flowered earliest. Shallow pans are to be filled to within about two inches of the top with a mixture of peat, leaf-

soil, and silver sand ; and the tubers shaken out of the dry earth, and planted evenly over the surface of the soil, at about an inch apart, and covered with similar soil. The pans are to be put into a forcing-pit or dung-bed, ranging from 70° to 75°, water being given cautiously until the plants appear above the soil ; and when they get about three inches high, and are strong enough to handle, they are to be transplanted into the blooming pans.

If they are required for exhibition, they look best in large pans ; but pots will do equally well. The soil I use is equal parts loam, leaf-soil, and good rotten manure, with a little silver sand. Good drainage is a very essential point in their cultivation. After filling the pots or pans within three inches of the top with the compost, the plants are placed in them. Those that are weakly require to be put closer together than the strong-growing sorts : about twelve of the strong ones should go to a twelve-inch pan, and will make a good specimen. After planting, they get a gentle watering through a fine-rose pot. The pit is kept a little warmer for a few days until they get well established, and then air is given on all favorable days. Care must be taken to keep up a supply of moisture at the roots, and to shade when necessary. After the plants get about six or seven inches high, they can be removed to the stove, or to a vinery that has been started if a stove is not at command. They will now require staking. The sticks should be slender, as nothing looks worse than clumsy sticks : I put one to each plant. When they come into bloom, they can be removed to the conservatory ; and, if duly attended to, they will continue in bloom for some time.

By starting a few in March, and others in April, a succession of flowering-plants may be kept up. When they have done blooming, they can be ripened off by withholding water gradually. They keep well in a warm, dry greenhouse. I may add, that, when they are in bloom, a little weak manure-water will assist them. — *J. C. Higgs, in Pomologist.*

LONICERA AUREO-RETICULATA. — This plant is adapted for a variety of decorative purposes. With us here, it has proved perfectly hardy ; which is a point of great importance. Last season we employed it in the flower-garden, and found it to be most effective as an edging-plant, always looking well under the vicissitudes of our variable climate. It may be rapidly increased by cuttings of the half-ripened wood in a gentle heat in spring. As soon as struck, pot off into small-sized pots, two plants in each, and keep them well pinched to induce lateral branches. By these simple means, nice compact plants are secured by bedding-out time. I take care to have them thoroughly hardened off by gradually exposing them to the full blaze of the sun ; and plant pretty closely, so as to form a compact line at once. Should there be any gaps, we peg down the shoots. Frequent pinchings are requisite to keep the line in good order. I never allow the lines to exceed four or five inches in height. As it has proved so satisfactory for the purposes I have named, I intend employing it to a much greater extent another season.

It also forms a most desirable plant for pillar decoration in a lofty conservatory when thoroughly exposed. In the shade, its beautiful laced foliage is but faintly defined.

FRANCISCEA CONFERTIFLORA. —When well managed, this is one of our finest stove-plants. By growing two or three plants, forwarding some and retarding others, it may be had in bloom in succession for as many months; and its fine heads of purplish-mauve flowers and its laurel-like leaves, which contrast well with other plants, make it valuable for conservatory decoration.

Those who wish to grow it successfully should at once procure a young plant in a forty-eight or thirty-two sized pot. If it is well rooted, shift it into a pot one size larger, using three-fourths of good fibry peat, broken to pieces, but not sifted, and one-fourth of loam and leaf-mould, in equal proportions: add to this a liberal quantity of sharp silver sand, and mix the whole well together before using. An inch in depth of broken crocks should be placed in the bottom of the pots; and this quantity must be increased in depth at each successive potting, in proportion to the size of the pot. Over the crocks place some rough fibry peat to prevent the drainage from becoming stopped by watering; for, without efficient drainage, good cultivation is impossible. Pot moderately firm, and apply water until it runs out at the bottom of the pot. The plant should then be placed in a temperature of from 60° to 65°, and be syringed twice a day. The roots must not be allowed to suffer for want of water. In a short time, young shoots will begin to push: these should be pinched off above the fourth or fifth leaf. By this time the roots will have reached the sides of the pot, and a more liberal shift should then be given, — say into a sixteen-sized pot, — and a second growth in the same season will be the result. This should be pinched off, as before directed, and syringing continued till the end of October; about which time, probably, the flower-buds will begin to push from the eyes at the top of the second growth. After these make their appearance, the plants should be syringed only once a day when the weather is bright, but not at all in dull, cloudy weather; and, as soon as the flower-buds begin to open, discontinue syringing entirely until the plant is out of bloom.

If the plant is removed to a temperature of from 45° to 50° as soon as the flowers begin to expand, they will be larger and much better colored than they would have been if kept in a higher temperature. When the plant begins to show signs of growth, repot; at the same time reduce a little of the old ball, though the roots must by no means be injured in this operation. The plant will now require but one shift in the year; and but one growth in each season must be expected after the plant has been allowed to bloom, or its energies will become overtaxed, which will lead to premature decay. — *Florist.*

THE CULTURE OF EPIPHYLLUM TRUNCATUM. — When well grown, this plant is one of the most showy decorative of the stove-plants which flower in the dreary months of November and December. I had a collection of different varieties in flower here; and most beautiful objects they were, mixed with other plants in a warm greenhouse. They range about three feet in height; and, with the exception of about six inches at the top, they are a complete mass of flowers to the bottom of the pot. The young plants were procured from the Messrs. Lee of Hammersmith, who obtained, I believe, some of the varieties from the Continent. I am not aware what stocks or stock they have been grafted or inarched

on; but they seem to grow vigorously. The following varieties are the best and most distinct in colors that have flowered here; namely, *elegans*, *magnificum*, *Russellianum*, *superbum*, *truncatum violaceum*, and *Ruckerianum*.

My collection has been managed so as to keep the plants rather dry after they have done flowering, and not to excite them to grow before June or July. At that period they are repotted, the old balls being well reduced. The soil used is richer than what is generally given to succulent plants; namely, some well-rotted deer-dung, mixed with broken lime-rubbish and light sandy loam. They are then kept in a warm, moist stove to make their young growths; and generally flower about the middle of November. — *Saul, in Florist.*

LAXTON'S SUPREME PEA. — The Fruit and Vegetable Committee of the Royal Horticultural Society has now for two seasons reported in general terms its high opinion of the merits of Mr. Thomas Laxton's new early pease. I have just had an opportunity of inspecting a few of these new pease, and among them of one named Supreme, — a variety raised from Laxton's Prolific, crossed with Little Gem. In the dry state, the seed is in color of a dark olive-green, and in shape slighted indented. The plant grows about three and a half feet in height, and is quite as early as Daniel O'Rourke; a great advantage in a pea of such high-class quality. I was so struck with the fine character of Supreme, that I obtained a few pods for your inspection. They are somewhat advanced in age, as the crop was fast becoming ready for harvesting; but they are a fair sample of the bulk, and were picked by myself in order that an average test should be supplied to you. The piece from which the pods were obtained is in extent two and a quarter acres, and so even and true to character in the growth, that there is, in this variety, no trace of the mixed character noticeable in some of the others which I have seen growing at Chiswick. It is unquestionably a first-class early pea, and will be as great an acquisition as any pea of modern introduction. — *Gardener's Chronicle.*

PEASE. — That Mr. Thomas Laxton of Stamford has been pre-eminently successful in raising from seed some fine new varieties of pease, is abundantly proved from a trial of the same at Chiswick. They belong to the first and second early sections, and possess a marked individuality of character. The earliest is Alpha, a very fine and prolific variety, with long-curved and well-filled pods. Its height is about two and a half feet; but it is slightly mixed with some plants of a kind similar in character to Dickson's Favorite. The most distinct and valuable variety, in as far as can be ascertained thus early, is William the First. It grows also about two and a half feet high, and partakes of the character of a green marrow. It has very fine and long pods, which are ready to gather as early as those of Daniel O'Rourke. It is a first-class new pea, but, like Alpha, wants careful selection to fix the character. Some other varieties of Mr. Laxon's raising are of a very promising character, but are not far enough advanced to admit of an opinion as to their merits. — *Cottage Gardener.*

On Sarracenias and their Culture. — Although not having the gorgeous colors which many of the more fashionable plants usually met with in the stove or greenhouse possess, nevertheless there are few plants in cultivation more worthy of place than the sarracenias; for unquestionably they are amongst the most curious of Nature's vegetable productions, and, when well grown, possess a beauty of their own, which has the recommendation of lasting throughout the year.

Having been tolerably successful in growing them, I propose to give a few hints on their general cultivation. As they are found indigenous in Florida and the adjacent regions of temperate America, it is at once obvious that they do not require, nor will they long exist in, that excessive heat, especially in the winter, to which we often see them subjected. Through the months of September, October, November, December, and January, I find that a temperature by night of 45° to 50°, and by day of 50° to 55°, suits them best. About the middle of February, they show signs of growth; then I pot them, and increase the temperature about 5° day and night. By the middle of April, I give them 5° more. Through May, June, and July, I give them 65° at night, with a rise of 10° by day. Of course, in very hot weather, the temperature will run higher; but they get plenty of air day and night. They are kept near the glass, and a thin shade is used in sunny weather.

The mode of propagation is by division of the crowns with a sharp knife. The compost I pot in is good fibrous peat, broken about the size of pigeons' eggs; to which are added one-sixth of chopped sphagnum and sufficient silver sand, and crocks broken to the size of horse-beans, to keep the soil open. On no account are the plants allowed to remain more than twelve months in the same soil, however fresh it may appear; for, if left a second season, the soil will be certain to become sour, and then the roots rot as fast as they are made. When repotting, shake them clean out. I do not approve of pans placed under the pots; and never syringe overhead, as it has a tendency to induce a softer growth in the pitchers, which causes them to die off much sooner. During the growing season, I water every day; in winter, twice a week.

I should strongly advise those who may be commencing their cultivation to procure thoroughly-established plants, as there is great uncertainty in imported ones. Sometimes almost every plant in an importation will grow: but much oftener the plants, after potting, commence growing, and go on the first season without making any roots; the leaves they produce being simply a last effort of the plant working on the little vitality it has left. Such plants are almost certain to go off in the winter: hence their scarcity. On one occasion, I received a dozen plants, which all appeared to be going on right the first season; but only one of the number lived through the winter: they had made no roots. The sorts I cultivate are these: —

S. rubra, which is extremely rare, — the flowers scented, equal to Russian violets; *S. purpurea*, and a variety much finer than usual in its veinings; *S. flava*, three varieties, quite distinct from each other; *S. variolaris; S. Drummondii rubra* and *Drummondii alba*, the latter variety being very scarce. — *T. Baines, in Florist.*

Mr. NATHANIEL B. WARD, F.R.S., of the Ferns, Clapham Rise, died on the 4th ult., at St. Leonard's-on-Sea, in his seventy-seventh year. Mr. Ward will be best known to our readers as the inventor of the Wardian Case, an invention which was thus brought about: In the summer of 1829, he had placed the chrysalis of a moth in some mould in a glass bottle covered with a lid, in order to obtain a perfect specimen of the insect. After a time, a speck or two of vegetation appeared on the surface of the mould, and turned out to be a fern and a grass. The bottle was placed in a favorable situation, and the plants continued to grow and maintain a healthy appearance. On reflecting upon the matter, he found, that, in the bottle, the conditions necessary to the life of the plants, as air, light, moisture, were maintained, and the deleterious influences, to a great extent, excluded. This case gave birth to others. The plan was tested; and after a few years Mr. Ward had the satisfaction of knowing, that, through his invention, he had been the means of introducing Nature into the crowded city, and of facilitating the transport of valuable plants to and from different parts of the world. Through the greater part of his life, Mr. Ward was associated with the Apothecaries' Society of London: first in connection with its garden at Chelsea; then as examiner for the prizes in botany; then as master, when he endeavored to bring the scientific element of the society into prominence by giving two microscopical *soirées*, which have not since, there or elsewhere, been surpassed; and ultimately as treasurer. In the memory of those that knew him, Mr. Ward will live as a type of a genial, upright, and most amiable man, an accomplished practitioner, and an enthusiastic lover of Nature in all its aspects.

HYBRIDIZATION IN PLANTS. — The subject of hybridization in plants is one of such interest, alike to physiologists and practical cultivators, that no apology is needed for bringing the subject again and again under the notice of our readers. Among the gourd family, the results of experiments are so striking and so beautiful, that it is no wonder that special attention should be paid to them by French amateurs; though it is strange that their British *confrères* have not followed suit to a greater extent than they have yet done. With a view of calling attention to the subject, we propose to give now a summary of M. Germain de Saint Pierre's experiments, as recorded in "The Bulletin of the Botanical Society of France." The gentleman just named tells us that he sowed seeds of the handsome *Lagenaria sphærica*, from which in due time plants were raised, bearing female flowers only. Desirous, however, of seeing the fruit of this fine gourd arrive at maturity, M. Germain de Saint Pierre fertilized some of the female flowers with the pollen of the serpent gourd, *Lagenaria vulgaris*. The two species are so different, that the experimenter scarcely expected any result; but, after a considerable interval, one fruit was produced. Meanwhile some male flowers of the *Lagenaria sphærica* were produced, and sufficed to fertilize the female flowers. The observer had thus under view one fruit formed in consequence of a hybrid cross between two species and others produced normally. So like, however, were all the fruits, that it was supposed, after all, that there had been no cross, and that the fruit supposed to have such an origin had really been impregnated by some undetected male flower.

In order to put the matter to the test, seeds of the supposed crossed fruit and of the normal plant were sown. In both cases, the seed germinated; and now the hybrid nature of one set of seedlings became apparent in the fact that their appearance was exactly intermediate between the two parents above mentioned. Space will not permit us to give the details, which are not only interesting in a physiological point of view, but also in a cultural aspect, from the elegance and beauty of the fruit of the hybrid plant.

Subsequently, M. Germain de Saint Pierre continued his observations on these interesting plants. He fertilized the flowers of his hybrid *Lagenaria* with pollen from *L. vulgaris* and *L. sphærica* (the original parents), and with pollen from *L. angolensis*. In this case, then, the hybrid flowers were impregnated with pollen from three different species. Fruit of a similar character was produced in all cases; but the seedlings derived from that fruit were either intermediate in character between the parent plants, or reverted almost entirely to one or other of the parent species.

In fine, these are M. Germain de Saint Pierre's conclusions from his experiments: —

"1. Fecundation may take place, if not frequently, at least occasionally (*accidentellement*), between widely-different species, but belonging, nevertheless, to the same genus, or to two very closely-allied genera.

"2. The fruit produced as a consequence of artificial fertilization does not differ, generally speaking, from the normal fruit.

"3. The same female flower (at least in these *Cucurbitaceæ*), with several seeds, as in *Lagenaria*, may be fertilized by pollen derived from several species of the same genus, so that different seeds originating in the same fruit may produce different plants, — plants, that is to say, having either the characters of hybrids, or plants reverting to one or other of the parent species.

"4. The seeds of the normal female flower, fertilized by the pollen of another species, may all be perfect, and arrive at maturity: on the other hand, fruit fertilized by the pollen of a hybrid plant produces only a small number of perfect seeds, which arises from the fact, that, in hybrids, the ovules are not usually perfectly formed.

"5. Very generally, the stamens of the hybrid flowers are destitute of pollen, or at least of effective pollen: hence the female flowers of hybrids, although they might possess well-formed ovules, would still be sterile if they were not fertilized by pollen from normal species.

"6. The female sex is then, in this case, protected and preserved, while the male is abandoned. . . .

"7. A hybrid plant may present, in all its parts, characters perfectly intermediate between those peculiar to the male and to the female parent. . . . The female plant seems only to furnish the teguments of the embryo, and, at a later period, the material for its nutrition: the male plant seems to supply the first constituent materials for the embryo. The ovule (in M. Germain de Saint Pierre's opinion) is a bud produced on the carpellary leaf: the pollen grain is a modified cell belonging to the cellular tissue of the staminal leaf. Nevertheless, these two different organs impose, to an equal extent, the character of their

species on the offspring resulting from their union. In the case of grafts, however, the scion does not derive any character from the stock (not an absolute rule this).

"8. The female flowers of hybrids, fertilized by the pollen of a normal species, may yield fruits and fertile seeds: these seeds produce a second generation, the individuals of which may either return exactly to one of the normal types, or constitute hybrids of the second degree, having partly the characters of the hybrid-mother, partly those of the hybrid-father plant.

"9. These hybrids of the second generation or degree may, in their turn, be fertilized by pollen from a species, and yield ripe fruits and well-formed seeds, returning, or not, to either of the normal types.

"10. Perennial hybrid plants are preserved as individuals, and may be multiplied by subdivision, cuttings, or grafts. Not so with hybrid annual plants: these cannot, as a rule, be fertilized with their own pollen, but require pollen from the species in order to ripen their fruits. Hence the following generation tends to revert to the paternal type; so that, after a time, the paternal element so preponderates, that the hybrid ultimately reverts completely to the paternal type. This generally happens in the third generation.

"11. The maintenance of a hybrid form by generation can, therefore, only be hoped for in those very rare cases wherein the hybrid-mother plant produces fertile pollen capable of impregnating the female flowers.

"12. Crossed fertilization occurs in Nature generally from the agency of insects (especially of bees), which carry the pollen from one flower to another. Crossed fertilization or hybridism is rare among species: it is, however, common between female flowers of crossed plants having imperfect or sterile stamens fertilized with pollen from typical species." — *Gardener's Chronicle.*

ONE of the most gorgeous shows of rhododendrons and other American plants ever seen was furnished in June last by Messrs. Waterer and Godfrey of Knaphill, at the Royal Horticultural Gardens, South Kensington. It occupied, as usual, the monster tent in the eastern annexe; but on this occasion the interior had been totally changed, and thrown into an irregular series of banks and hollows. As floral exhibitions, these grand displays of rhododendrons and azaleas are really enchanting. We may refer to a few recent kinds of striking beauty which formed part of the show, — Caractacus, a rich purplish crimson, with splendid truss, foliage, and habit; H. H. Hunnewell, a dark rich crimson, splendid truss; H. W. Sargent, a magnificent crimson, an enormous trusser, with the Catawbiense habit; James Bateman, a clear rosy scarlet, of the most perfect shape and habit; Mrs. John Clutton, of most exquisite shape, and one of the most beautiful hardy white rhododendrons in cultivation; Mrs. Milner, a rich crimson, a first-rate kind; Purity, a handsome white, with faint yellow eye; Sir Thomas Sebright, a very distinct rich purple, with large bronze blotch, and one which remains a long time in flower; and Stella, a pale rose, with an intense chocolate blotch on the upper petal, a free bloomer. These are all seedlings, raised at Knaphill; and, like the other varieties bred in that establishment for many years past, are remarkable for their free habit, fine, bold, enduring foliage, and close flower-trusses.

Among the seedling azaleas at Ghent were three which appeared very desirable in point of color, surpassing every thing which approached them in brilliancy; namely, *Roi d'Hollande*, a rich vermilion, spotted on the upper segments, and remarkable for smoothness and substance; *James Veitch*, a most brilliant tint of magenta-rose; and *Coloris nova*, a rich glowing crimson.

Azalea (Indica) Lizzie. — This fine azalea has twice passed the ordeal of the Floral Committee; on one occasion receiving a first-class certificate, and on the other a certification that its high character had been well maintained. Its chief peculiarities are its smooth surface, which gives it a perfect outline; its distinct markings, which take the form of stripes of bright carmine on a pure white ground, varying in breadth and disposition; and its great substance, which results in the long endurance of the flowers. We learn from Mr. Kinghorn, by whom it was raised, that this latter quality is very noticeable, the plants standing much longer in flower than those of any other variety. The flower opens with a greenish tinge, and blanches as it expands; so that the fully-developed flowers have a pure white ground, which is well set off by the well-defined and elegant markings. Like most of the varieties Mr. Kinghorn has sent out, this new striped azalea is one which may be recommended with the highest confidence. We learn that the constitution and habit of the plant are all that can be desired.

The improved varieties of greenhouse or Indian azaleas are certainly not surpassed, if equalled, either for exhibition or conservatory decoration, as by a selection of the earliest, the medium, and the very late sorts, they can be had in bloom from Christmas till the end of June. The earliest and most forward plants may be introduced to the forcing-house from about the middle of October, at intervals, to keep up a succession of bloom. "All the varieties," observes Mr. Kinghorn, "at whatever season they bloom, are much improved in quality by being kept in rather a close, warm temperature while expanding their blossoms." — *M., in Florist.*

The Strelitzias. — This splendid genus of Musads is, I think, not so much grown as their great beauty merits. I had, last February, a plant of the dwarf species, *S. humilis*, in flower, with twenty-seven spikes on it; and few plants looked so gay and interesting at that wintry season. This plant was grown in a warm conservatory amongst greenhouse ferns, dwarf palms, and other plants; and I find the way to flower it in perfection is to give it plenty of room for its roots either in a very large pot or tub. My plant in flower was shifted into a large tub about two years ago, and it now forms an immense mass of foliage and flowers. The strelitzias seem to flourish best in a light loamy soil mixed with leaf-mould; and they need plenty of water, as well as frequent syringing, when growing and coming into flower. They are generally cultivated in moist stoves, but will flower well in a warm conservatory if planted out, or if grown in large pots or tubs.

The following sorts I have found the best and showiest of the family, — *Strelitzia augusta*, *S. reginæ*, *S. humilis*, *S. ovata*, *S. parvifolia*, and *S. angustifolia*. — *Cottage Gardener.*

DR. GRANT'S ADDRESS AT CANANDAIGUA.* — *Mr. Tilton*, — With your permission, I propose to review briefly the address of Dr. C. W. Grant, read at Canandaigua, N.Y., and again before Whitlock's Club in New-York City.

When a gentleman is invited to address an assembly on so important an occasion as the meeting of the New-York-State Grape-Growers' Association, is it usual, or in good taste, to appropriate the hour entire to his own benefit? Had he alluded to his personal matters incidentally, I think no one would have taken exceptions; and I am quite sure I would not have instituted this query. It may subserve public interest if you or some other gentleman will answer this question relative to the ostensible purpose of the writer on such an occasion, which all will agree was undisguised in this instance. When his subject was announced, "The Past, Present, and Future of Grape-Culture," the people seemed to feel that they were to receive some instruction in relation to the management of the vine. During the whole reading, no allusion was made to culture; but the character of varieties was considered only. There was no American variety that did not come under his ban, excepting "his trinity," as they were styled by a gentleman in the discussion at Canandaigua, — Iona, Israella, and Eumelan.

He says, "It requires care and skill to perfect the Delaware; the Hartford and Concord are wild and foxy; the Isabella never ripens to the centre, and is marked not only by feebleness of flavor, but often by a strong savor of native impurity; Catawba, foxy impurity, acridity of skin, and an unripe acid centre; Diana, offensive aroma; Walter, scarcely distinguishable from Diana; Adirondac, no large amount of goodness added over the Isabella; Diana Hamburg, foreign, not hardy; Ives, the extreme of foxiness." Elsingburg, Norton's Virginia, Lincoln, and Herbemont are nowhere. And now we will step forward to the third era in creation. Blessed is he who liveth in the days of Iona, Israella, and Eumelan! "Rogers's Hybrids do not contain any foreign admixture." So, Mr. Rogers, you see you should have lived in the "middle period" to have had your efforts appreciated. A new era indeed! I never before knew that wild grape-seeds would stray from their class in this manner. Were it possible for them to do so, our ancestors would have enjoyed Grant's "third period." The laws of Nature are invariable, unless changed by volition or accident, either of which is possible in the crossing of plants. That such varieties as Rogers's Hybrids should have proceeded from the *Vitis Labrusca*, without the admixture of our native improvements or foreign varieties, is only absurd, as the most casual will admit. The Black Hamburg is traceable in nearly all of them; and, holding this opinion, I think I shall not suffer by the criticism of any gentleman of experience. Now, is it not ungracious for a gentleman, who has never made any pretensions to scientific crossing, to say to one like Mr. Rogers, who has spent most of his life in experimental researches (the result of which has benefited the world materially, and, in conjunction with others, has developed the laws of mixture, that may result in far greater perfection in future ages), that he is mistaken, and that his provable crosses are no more than freaks of Nature? and

* The Editors publish this letter in accordance with the rule they have adopted, — to give both parties a fair hearing in any disputed matter; but must disclaim any indorsement of Mr. Caywood's statements.

Mr. Allen, and the rest of us, must be placed in the same category by the countenance of a great State society, who may publish his strictures without comment. This gentleman, who so little appreciates the efforts of others, found his own seedlings under Catawba and Isabella arbors, where they spring up spontaneously every spring; or, at least, so he told me in the presence of two other gentlemen who remember it distinctly: thus showing that varieties like the Catawba and Isabella, which are accidental crosses, will continue to produce their freaks, as the child sometimes resembles the grandparent more than the parent.

Much is sometimes claimed when the facts cannot be proved. There is not a particle of Diana in the Iona. Its Catawba character is apparent to all, and ripening at the same time, excepting this season. The last two dry seasons in the grape-regions have ripened the wood and roots prematurely, so that well-ripened Isabellas, Catawbas, and Ionas were picked in those sections before the middle of September, which is unusual; but another wet season will put it back where it was found two and three years ago. It has never ripened excepting in the grape-regions about the Lakes; and I doubt if twenty-five vines of this variety can be found east of these sections that ever perfected their fruit, unless near other bodies of water or in protected localities. I saw Ionas this fall, after the frost had appeared, in New-York City, also in the Hon. M. P. Wilder's grounds in Boston, as green as they were in July. My own have uniformly rotted for the past three years.

The only worth of the Israella is its earliness; taking it for granted that city people will eat any thing or buy any thing that apes the reality.

I think we could adopt for the Eumelan the Irishman's prayer which he offered for his corn: "Give us this year great long ears as long as your ar'm, and none of the little wee nubbins like ye gave us last year." We have been offered a quantity of the buds this fall by the originator: we refused, and bought but few of them. The following I wish to put on record as my opinion of the varieties the doctor names: —

Isabella, a good table-grape when ripe, rarely exhibiting native impurity. Leaf withstands *mildew tolerably well.*

Catawba, slightly foxy; but little acridity of skin. Too late. Should contain more saccharine for a perfect wine; but a good table-grape when *perfected. Moderately* affected by mildew.

Delaware, a dwarf; does not succeed excepting in garden-soils or the shale sections of the Lakes; good; skin acid; centre also, except when over-ripe; foliage frequently entirely destroyed by mildew in August. Diana unreliable away from grape-sections, but good and sweet to the centre where the vine succeeds; leaf hardy as Catawba. Iona seldom succeeds except near bodies of water; leaves mildew badly; fruit rots; and always too late, excepting this year; pulp vanishing from the mouth instantly, leaving the most acrid and bitter skin of all other varieties, which, if drawn with the tongue, destroys all the good effects of its flesh; and its acrid skin is discoverable in its wine. We particularly request that the skin of this variety may be tested by all. Walter, a cross of Delaware and Diana, partaking mostly of the former; a perfect table and wine grape. This

was shown by the saccharine test at Hammondsport, Oct. 28. Iona grown at the Lakes beat the Walter grown at Poughkeepsie two degrees; one and a half pounds of Iona, and seventeen ounces of Walter. Next morning, the same parties tested seventeen ounces of the same Ionas. The Walter beat it by eight degrees. This is the first season we have ever seen mildew on the Walter, the young vines being slightly attacked.

When any particular shall appear in its character or habits differing from this statement, we here say, we will refund the money paid for the vines.

Many of Rogers's varieties are acquisitions; Salem, and Nos. 9 and 41, equalling Iona as table-grapes, and much earlier; leaves hardy as Catawba.

Israella, early, possessing but little character; leaves suffer much with mildew.

Adirondac, nearly as good as Isabella, and much earlier in most localities; leaves hardy as Isabella.

Diana Hamburg, not acquainted with.

Ives. — We ate specimens of this grape at Painesville, O., at the Lake-shore Exhibition, sweeter than any Iona we ever tasted, equalling in saccharine-matter the most perfect Delaware; foliage hardy.

Concord and Hartford, too well known to speak of.

Eumelan, cross of Isabella and Clinton; small, with skin so bloody it cannot be eaten or handled to any extent without staining lips and fingers; foliage affected with green-knot like Clinton. The Eumelan, Lincoln, Elsingburg, and Lenoir, good for making up a variety. *A. J. Caywood.*

Poughkeepsie, N Y.

Propagating Vines by Eyes. — When the proper time arrives for pruning, preserve the prunings by sticking them in the ground, or in a flower-pot filled with rather moist but not very wet soil. In January, or early in February, you may prepare the eyes by making on the back of the shoot, opposite the eye, a cut with a sharp knife, bringing the knife out almost three-quarters of an inch below the eye. The same proceeding is to be repeated, bringing the knife out above the eye, and you have an eye with a portion of wood above and below it, and slanting from the back to the side on which the eye is situated. The eyes, when prepared, are to be inserted in pots or pans filled to within an inch of the rim with turfy, light loam; the eyes being placed either horizontally or vertically, about an inch and a half apart, and covered with half an inch of fine soil. They should be placed in a house or frame where there is a hot-bed, in which they should be plunged; the temperature being not more than 90°, nor less than 75°. The top-heat may be from 60° to 65° at night, and 75° by day, and 80° or 85° with sun-heat. The soil ought to be kept moist, but not wet, until the eyes have begun to grow; then keep it moist, affording a light syringing morning and evening. When the eyes have pushed a few inches, they may be taken up carefully, and potted off singly; and if kept in a hot-bed, and a moist atmosphere is preserved for a time, they will grow freely. The young vines thus produced must be repotted as often as the pots become filled with roots. Give them their last shift about June.

CRIMSON THRIFT. — Next in point of merit to the beautiful varieties of *Primula cortusoides amœna*, recently introduced into this country, I do not hesitate to place this dark-flowered *Armeria*. If any thing, the latter is more hardy; whilst for compactness of growth, continuity of flower, ease as regards propagation, and adaptability to the uses to which it may be put as an edging-plant, it is second to none. Nor must the color of the flower, or appearance of the plant itself, be judged of by any reference to its old, pygmy prototype, the old "thrift" of our gardens. The leaves of the variety to which I refer possess a far deeper green tint, and are sufficiently wide to give an effect perfectly evergreen-like, without in any degree depriving the plant of its true generic characteristic. The flowers, which are bright, have their color enhanced by contrast with the green foliage just alluded to; are borne boldly upon foot-stalks some six or eight inches in length; and are well adapted for bouquets or other uses to which cut-flowers are usually put. Plants which commenced blooming with me early in May of the current season have continued to do so more or less perpetually up to the present time. As this is a good time to propagate this class of plants, especially this variety, I may state that every plant may be divided into from forty to fifty divisional parts; and that these, if dibbled separately, firmly, into the open border, will root freely, and yet have time to establish themselves before winter in reality sets in. — *William Earley, in Cottage Gardener.*

CONDITION OF THE CROPS IN OCTOBER. — WHEAT. — The full promise of the early summer has not been realized in the wheat-harvest. The increase of area over that of last year, in its effect upon the aggregate production, is nearly neutralized by a small diminution, in some of the principal wheat-growing States, in the yield per acre; so that the increase in the total quantity, as shown by our October returns, is scarcely more than three per cent, and that is obtained mainly from the Pacific coast.

The progress of wheat-culture westward is somewhat remarkable; and its history is not altogether unlike that of cotton, in its occupancy of new lands, and their desertion after a few years' use, — not, indeed, to grow up in sedge or forest, but to be laid down in grass, or employed in a more varied range of production. Not only does it go with population westward, but its movement is in an accelerating ratio, yielding results in bushels to each inhabitant surprising to Eastern farmers. Thus has the territory between the Mississippi River and the Pacific Ocean, which in 1859 yielded about 25,000,000 bushels, harvested about 65,000,000: while the country east of the Mississippi, with its accession of population and wide distribution of agricultural implements, has made no increase, as a whole; a few of the Western States barely making up the deficiency suffered in Virginia and Kentucky. It is a remarkable fact, that a region which nine years ago produced only one-seventh of the wheat in the country, now supplies nearly one-third of it. A similar progress in another decade will carry the centre of wheat-production beyond the Mississippi; and, were it possible for the Pacific coast again to quadruple its yield, that distant wheat-field would give a larger product than the aggregate production of the United States in 1850. Well may the East imagine the supply of breadstuffs decreasing, and naturally enough the West may deem their harvests golden; but when twenty more years shall

pass, and the virgin soils of California shall be despoiled of their fatness, and their yield shall be reduced to ten or twelve bushels per acre, where will the spoiler go for new wheat-fields to ruin?

The averages for October appear to show a decrease in production in Maine, New Hampshire, Massachusetts, Connecticut, New Jersey, North Carolina, South Carolina, Georgia, Alabama, and Texas; the latter having only half a crop. The other States indicate an increase: in most of those east of the Mississippi, very slight; in Minnesota, thirteen per cent; in Iowa, six; in Missouri, eight; in Nebraska, thirteen; in Kansas, twenty-three; and in California, twenty five per cent.

Many places in different parts of the country, especially in Maryland and Wisconsin, report a disappointment in the yield of grain in threshing. The disappointment, however, is sometimes in the other direction.

OATS.—This crop is light in the Eastern, Middle, and Southern Atlantic States; is not a full average in Michigan, Wisconsin, and Iowa. In the other States, the product is above the average; the largest increase being twenty-one per cent in Nebraska. In Wisconsin, the deficiency is nine per cent. Our Green-County correspondent says, "The oat-crop of this vicinity has been considered almost a certainty; but, owing to very hot weather just as the oats were beginning to fill, the crop was materially injured. Fields that promised from forty to seventy-five bushels per acre, when harvested actually produced from twenty to thirty. From many inquiries, I have heard of but one field producing over thirty bushels per acre. As a whole, the crop has been quite as large as that of last year."

RYE, in most of the States, is marked by figures very similar to those which show the relative product of oats.

BARLEY.— The barley-crop is somewhat deficient in Ohio, Indiana, Illinois, Wisconsin, and in most of the Atlantic States. It will scarcely make so large an aggregate in bushels as last year.

CORN.— Considerable injury from frost is reported in Northern Indiana, Illinois, Iowa, and more northern latitudes. In some portions of Iowa, an estimate of two-fifths of soft corn is made. From Southern Indiana, Southern Ohio, West Virginia, and Pennsylvania, come complaints of immaturity in consequence of wet weather; and a few accounts of injury from drought are received. No general or very severe droughts have been reported. The high temperature of July was favorable to the growth of corn; but the unusual coolness of the later summer gave a sudden and injurious check at the critical period of earing, resulting in late ripening, smut, and other evidences of abnormal conditions. Yet the acreage is undeniably large in most of the States, and nowhere is there very serious failure. The total product will be, therefore, not what was hoped in the early season, or what is needed for a country with a rapidly-increasing population, but a somewhat larger quantity than last year, which was a season peculiarly adverse to corn-production. A good crop should exceed a thousand millions of bushels. Last year's production was little more than three-fourths of that quantity; and the present, though not yet fully harvested, and the material for a final estimate returned, does not promise to reach that figure by ten or fifteen per cent.

COTTON. — The area in cotton is somewhat less than last year. Its culture has been better, the preparation for planting more complete, and labor more regular and reliable, as a general rule. Early in the season, the promise was fine. Serious losses have of late been incurred, however, principally from depredations of the cotton-caterpillar, or army-worm, which have proved more general and severe in Georgia than elsewhere, very troublesome in portions of Alabama and Mississippi, and somewhat prevalent in the Carolinas and in Arkansas. Heavy rains in Tennessee and the South-West have caused anxiety, but done less damage than was expected. Our returns indicate a smaller crop, possibly by fifteen or twenty per cent, than last year; but the complete estimate will not be made till the crop is gathered.

It is the aim of the statistician to give the exact truth, — nothing to extenuate, and nothing to depreciate. Some farmers would conceal the actual facts of the harvest, with the expectation of better prices as a result of the deception. The hope is fallacious: the fraud will always be discovered. On the other hand, there are always buyers who will give publicity to extravagant estimates to depreciate prices, and magnify a scarcity after having purchased heavily, to give an unnatural stimulus to the market. Honesty is decidedly the best policy for farmers as well as others. In these estimates, while a doubt exists, it may be proper to give producers the benefit of it, and make the figures somewhat smaller, rather than larger, than the probable result. Acting on this principle, the cotton estimate for 1866 was placed at 1,835,000 bales, and that of 1867 at 2,340,000 bales; while the actual shipments of the cotton for those years reached very nearly 2,000,000 and 2,500,000 bales respectively. Could every pound have been counted in advance, no fairer statement could have issued from this department.

PEASE AND BEANS will be nearly an average crop.

BUCKWHEAT is very generally deficient. Connecticut, New Jersey, Minnesota, California, and some of the Southern States, furnish favorable exceptions.

SORGHUM has been more successful than last year. Illinois and Wisconsin are not quite up to last year's production. Both buckwheat and sorghum were injured by early frosts in high latitudes.

POTATOES. — In Southern New England, New Jersey, Delaware, the Gulf States, and California, potatoes are reported a full average crop, with a deficiency of ten per cent in New York and Pennsylvania, from three to seven per cent in the Southern Atlantic States and Tennessee, twenty in Illinois, ten in Iowa, eleven in Indiana, fifteen in Ohio, sixteen in Michigan, and a greater or less reduction in other Western States.

SUGAR-CANE. — Returns from Louisiana indicate an increase of twenty-two per cent over last year.

OLD WHEAT. — The amount of old wheat on hand is somewhat less than usual throughout the country, with the exception of the cotton States, which have a higher average than last year. This remark will not apply to Texas, where the granaries are uniformly empty. The quantity left over in Wisconsin is relatively somewhat lower than in the neighboring States.

GIANTS OF THE VEGETABLE WORLD.— Within a day's journey of the metropolis of Victoria, there grow the loftiest trees of Australia, and perhaps of the world. In the back gulleys of Dandenong on the Black Spur, and near the sources of the La Trobe River, as well as in some of the remoter valleys of the Upper Yarra, a kind of Eucalyptus, botanically known as *E. amygdalina* (almond-leaved gum-tree), attains such a marvellous height, as to rival, at least in this respect, the Wellingtonia pines of California. The stems rise as straight as masts, but with a height far exceeding the masts of any naval structure. The height of the loftiest ranges from four hundred to five hundred feet. A fallen tree on the Black Spur measured four hundred and eighty feet in length. Another in Dandenong showed a height of two hundred and ninety-five feet to the first branch: the height then extended seventy feet farther in ramifications to the broken top-branch, which here still measured three feet across. A still larger tree at Berwick measured eighty-one feet in circumference at a distance of four feet from the ground. The stems, with exception of the base, are beautifully smooth, and of an ashy color. The wood is excellent for shingles, and splits with facility. Like many other Eucalypti, this huge species grows with celerity, far more so than the Californian Wellingtonia; and the minute seeds germinate with the utmost facility. *Eucalyptus amygdalina* is restricted to Victoria, New South Wales, and Tasmania. — *The Builder.*

GLADIOLUS. — William Tillery sends to "The Florist" his experience with the gladiolus in 1863. The following new sorts of 1863 have already flowered with me; namely, Semiramis, a grand flower, of a peculiarly purplish rose, with white lines in the centre of each petal. Norma, a large, well-formed flower, French white, stained with lilac. Princess Alice, lilac rose, stained with carmine. Mozart, Rossini, and Urani, of this year's sending-out, have not yet flowered with me.

The following varieties, sent out in 1867, have flowered very finely, and can be recommended to growers as of the very best quality: Shakspeare, a grand flower, white, flamed with carmine rose: it is an early bloomer, and has seeded plentifully with me. Eurydice, another grand light flower, white, flamed with carmine. Milton, very fine white, tinted with rose. Thomas Moore, one of the very best, rosy carmine on a white ground. Princess Mary of Cambridge, clear white, large carmine spot. Lady Franklin, very fine, white ground, shaded with rose. Adolphe Brongniart, fine, light rose, flamed with orange. Anais, very dwarf and fine, white and lilac shaded. Sir J. Paxton, fine large flower, light orange carmine on a white ground. Maréchal Vaillant, very fine scarlet, with white lines. Sir W. Hooker, cherry and carmine, large flower. Grueze, rose cerise, fine spike. Noemie, large, light rose. Felicien David, cherry and rose, white throat. Apollon, rose and lilac, white throat.

Of the older varieties, the very best have been the following: Meyerbeer, fine vermilion scarlet, grand spike, and finely-shaped flowers. Madame Furtado, fine white and rose shaded. Reine Victoria, fine large white, one of the very best. Empress Eugénie, another fine white variety. Belle Gabrielle, lilac rose, flamed with rose. Fulton, cerise scarlet, fine spike. Lord Byron, very bright crimson scarlet, but the flowers deficient in shape.

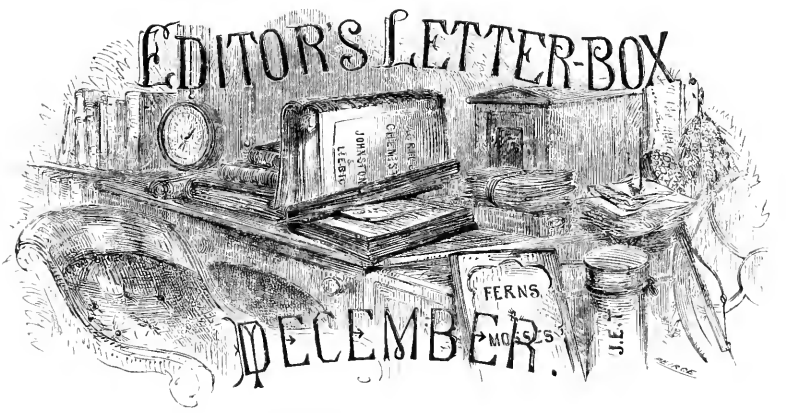
THE question as to zonale pelargoniums is concisely stated and settled in the following article from "The Cottage Gardener:" —

WHAT IS A ZONALE PELARGONIUM? — Will you say in your next journal what is a zonale pelargonium, and thus settle some dispute which has taken place in this quarter? — *J. McD.*

[The whole of the pelargoniums known as "scarlets," though their flowers are often pink, and even white, owe their productions to three species, — *P. zonale*, *P. inquinans*, and *P. Fothergillii;* and, inasmuch as the earliest of them were the progeny of *P. zonale*, they have been comprehensively termed zonales, though no zone is on the leaves of some of them; and, though the name is misleading, it is no more so than calling those "scarlets" which include plants with flowers of other colors. In short, the term "zonale" is intended to include a section of pelargoniums well known as bedders, without any reference to their being zone-leaved. Wishing to know if our opinion coincided with that of a well-known authority, but not a cultivator of these flowers, we wrote to him to ask his opinion. This is his reply: "I regret that this zonale question has been again mooted. I believe it arose from the disappointment received by an exhibiter, who would not allow that his competitor's plants were all zonales; he taking it for granted that a zonale must have a zone fully defined in the several leaves of the plant. The term 'zonale' has been taken from the original plant, *Pelargonium zonale*, the old horseshoe, from which the present race are all descendants. This is one view of the question. But when some of the seedlings produce plain leaves, without any sign of a zone, we are told these are not zonales. In one sense of the word, they certainly are not so; but these plain-leaved plants vary in no other way from those in whose leaves the zone is fixed: habit, color, growth, are all the same. But the florist chooses to subdivide these varieties into golden-edged, variegated, silver-edged, golden-leaved, bronze, and gold zonales, bicolors, or simply green leaves margined with white. It was one of these latter plants that caused this question to arise.

"I think myself it is absurd to quibble on this point. They are all doubtless in character true zonales: but some varieties are minus the zone; at least, it is not developed. Whether the coloring-matter of the zone is absent, or why it is not visible, I think no man can venture to say. I can but feel that all are truly zonales, though not developing a defined zone."

We are thus sustained in our opinion, as we also are by the facts, that some of the zonales which usually have no zone on their leaves, will, under a change of culture, develop zones on them; whilst, on the other hand, those usually with zoned leaves will, under different treatment, produce leaves not zoned. — *Eds.*]



THE Editors of "The American Journal of Horticulture" cordially invite all interested in horticulture and pomology, in its various branches, to send questions upon any subject upon which information may be desired. Our corps of correspondents is very large, and among them may be found those fully competent to reply to any ordinary subject in the practice of horticulture. Any questions which may be more difficult to answer will be duly noticed, and the respective subjects fully investigated. Our aim is to give the most trustworthy information on all subjects which can be of interest to 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.

H., Santa Cruz, Cal. — Names of plants: No. 1, *Rhododendron Californicum Hook;* No. 2, *Azalea occidentalis;* No. 3, *Spirea ariafolia Smith;* No. 4, *Clintonia Andrewsiana Torr.*

SUBSCRIBER, Baltimore, Md. — Most of the rhododendrons advertised as "hardy varieties" in English catalogues would prove hardy with you.

SUBSCRIBER, New York. — You can grow orchids very well in the city. They do not require much room, and will give you great satisfaction. Your house must have a sunny side; for plenty of light is essential, though not the direct rays of the sun.

IDEM. — There is no heath (*Erica*) hardy with us in New England; but, with you, many of the kinds cultivated in England out of doors would succeed.

The heather (*Calluna*) and its varieties will survive the winter in New England, and flower well; and *Gypsocallis herbacea*, sometimes *Erica herbacea*, is a charming little spring-blooming plant.

FOLIAGED PLANT-GROWER, Philadelphia. — We do not know of *Musa ensete* being for sale in this country. It is a noble plant for summer decoration. The following notes, which we find in English magazines, may interest you: —

"*Musa ensete.* — I have recently seen a fine plant of this musa, that remained in the open air all through the winter of 1867–8, in Baron Haussmann's garden, in the Bois de Boulogne. It was left in the position in which it grew during the summer of 1867, and in the month of November covered with a little thatched frame, the space about the plant being filled with dry leaves. All the leaves were cut off. In spring, the protection was removed, and the leaves pushed vigorously. It had (on the 8th September, 1868) sixteen leaves, not one of which was torn or lacerated, although it was in an exposed position. It was not more than five feet high, but more attractive than larger individuals of the same species, from being so compact, untattered in its growth. As most people who grow it will have means of saving it in-doors in winter, and as it is so rare, this way of keeping it is not likely to be taken advantage of with us at present; but that it can and has been so wintered is an interesting fact. Independently of its use in the open air (and it may have been noticed by many readers in Battersea Park during the present season), it is the finest plant ever introduced to this country for planting out in the bed of a conservatory, doing finely in a cool house. The above instance goes far to prove its hardiness; but I have several times seen it in the greenest health in mid-winter in cool houses around Paris." — *W. Robinson.*

Sub-Tropical Plants at Battersea Park. — The following are the heights attained this year by a few of the plants employed in the sub-tropical department, Battersea Park: —

Ferdinanda eminens	12 feet.	Canna maxima	9 feet.
Wigmdia caracasana	8 "	C. Van Houttei	9 "
Polymnia grandis	6 "	Solanum laciniatum	8 "
Canna Peruviana	11 "	Ricinus, several varieties	13 "
C. Annæi	12 "	Musa ensete	15 "

The stem of one plant of *Musa ensete* measured four feet five inches in circumference at the ground, and two and a half feet at three feet higher up.

BEGINNER, Portland, Me. — You can easily distinguish our native pines: the white pine has the needles in fives; the pitch pine has them in three; while, in the red or Norway pine, they are in two.

COUNTRY GIRL, Berkshire. — Your suggestion is a good one. Mr. Rand will probably give some notes on the cultivation of native plants in an early number of the magazine. He has many of our finest indigenous plants in successful cultivation.

IDEM. — Perhaps we have somewhat neglected parlor-plants; but, in our present number, you will find we atone for the omission. It is difficult in our limits to just meet the wants of all of our many thousands of subscribers; but we trust in every number to give much which may be useful to each.

VIOLA. — Cover your violet frames with sashes, and these, as the weather grows colder, with mats and shutters. Keep out the frost, give light and air on every warm day, and you may gather violets all winter.

X. M., Skaneateles, N.Y. — If you wish rhododendrons, plant fine hardy varieties. The native *R. maximum* is only of value for variety, and for blooming a little later than most kinds. In beauty, it bears no comparison to the varieties of *Catawbiense*. For culture, see article in our February number.

A SUBSCRIBER, Burlington, N. J. — We cannot tell you what pears will do best with you, unless you give us more information.

Your best plan is to plant those varieties which the experience of your neighbors has shown to succeed best in the vicinity. You can easily try experiments; but your main planting should be of those which you know will do well.

TYRO, Troy. — The flowers you enclose are those of the common single English violet, *Viola odorata*. It is not unusual for it to bloom in the autumn; in fact, it always does, and will give you flowers all winter if you protect it from frost. *Viola cornuta* is hardy. *Viola lutea* is tender.

THERE is an apple-tree growing on the grounds of one of my neighbors, one of whose limbs, about two and a half inches in thickness, was accidentally stripped of every particle of bark, for a space of about four inches, several years since; yet this limb has continued to grow ever since, made at least six inches of wood last year, and is now robed in green foliage, though it does not manifest the same amount of vigor as the rest of the tree. I examined the limb myself, and found, on cutting into the peeled part, that the outside wood was dead and dry. Have you ever heard of a similar occurrence? and how do you account for it?

NORTH LIMA, O. *Samuel Rau.*

[We have never noticed such a case. We have frequently known a branch to go through one season as though nothing had happened to it, and then die. If any of our readers can explain this case, let us hear from them. — *Ed.*]

AMATEUR, Worcester. — The seedling *fuchsia* sent is worthless: there are hundred of better varieties. Try again.

P. T. M. — You cannot keep crown imperials over the winter in a dry state, and plant them in the spring: they would dry up or decay. The less time they are kept out of the ground, the better.

SECOND QUESTION. — *Polyanthus narcissus* are not hardy without protection in New England. If the bulb-bed is well covered, or in a sheltered place, they will live, but do not flourish.

Amaryllis (*Crinum*) *longifolia alba* and *rosea*, if in a sheltered situation, will stand the winter if slightly covered, but will not give you much satisfaction.

E. P. K., New Bedford. — The osage orange (*Maclura aurantiaca*) is hardy about Boston if once well established; but the young plants are often killed to the ground every winter. It not unfrequently bears fruit.

I HAVE read in the Journal that you will give information, and answer questions, in horticulture. I have had no practical experience whatever in cultivation, but have just bought a place, which I wish to run myself, and shall probably wish to ask a great many questions from time to time. Please tell me now if the Iona Grape is a desirable sort to plant in a small collection? — *Amateur.*

[We shall be glad at any time to answer questions, and give you what information we can. By all means, plant some Ionas: there is no better grape grown, especially for your locality, which, we believe, is specially adapted to it.]

OBITUARY. — Just as we go to press, we are pained to learn from "The Transcript" that HORACE MANN, the eldest son of the late Hon. Horace Mann, died at Cambridge, Wednesday, Nov. 11. He had been suffering from pulmonary complaints, but had kept out, and at his chosen work. During a ride on horseback, in the unpleasant weather of Saturday, he caught a severe cold, which aggravated his disease, and occasioned its sudden and fatal termination. He was only twenty-four years of age; but he had already become known for his abilities, and his devotion to his studies as a naturalist. By his character and acquirements, he won the esteem and love of many friends. Beyond as well as within the afflicted home, his death will be mourned as premature, and as the bereavement of many cherished hopes. Mr. Mann was probably the best young botanist in this country; and we know of no one who can fill the place left vacant by his untimely decease.