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AND

GARDENER'S MAGAZINE.

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INDEX.

THE

HORTICULTURAL REGISTER,

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GARDENER'S MAGAZINE.

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Art. I.— *A Biographical Sketch of the Cammellia Family.*

We have been often surprised in taking up the periodicals of the day, to find so little said of this interesting class of our community. We have but once or twice met with any thing that has given us any account of their *manners*, *character*, or origin, and we have been the more surprised at this, as biographical notices are so much the fashion of the present day, and as all acknowledge they are deserving much attention.

Our acquaintance with these interesting strangers commenced sometime in the year 1831. Previous to this we had been introduced to one of this family, and the impression then made, was of the most flattering kind, and we can now add, that upon a more intimate acquaintance with them, our admiration has only increased.

We understand they are natives of China. At what precise period they came to this country we have not ascertained.

We have heard of large and flourishing colonies planting themselves in various parts of Europe at a very early period, but their arrival in this country is of a more recent date.

It is understood their ancestors cultivated the tea plant to a very great extent, and that their present high standing in society, is attributable to this cause. We know not how this may be, but sure we are, that their descendants have no partiality for the beverage made from this plant, having strictly enlisted themselves under the

cold water banner. Would that this could be said of *all* the foreigners that visit our shores; were this the case we should find the black and painful catalogue of crime upon our court callendar greatly diminished. But to return from our digression. There has been much speculation concerning these strangers. Some have wondered how they could leave their own country, knowing that the government of China was despotic, and that their laws were so strict in regard to the emigration of their subjects, that the violation of it has been punished with death. Others again have been surprised at their wishing to leave the land of their fathers for new and untried scenes, and various hypotheses have been formed in regard to them.

With the desire to gratify our readers we shall give some of the reasons, which, to our mind appear the most conclusive. It is generally admitted I believe, that they belong to the royal family, and that their ancestors once wielded the sceptre upon the throne of China, and indeed there is every thing in their appearance to substantiate this belief. The present Emperor is a descendant of the Tartar race. It would not require a very excursive imagination to conclude that as they did not belong to the present dynasty, some jealousies might have arisen from the fact that they were of that race that once controlled the destinies of that mighty empire, and which was now governed by a foreign power. Again, there might have been those that still retained all their former attachment to the remnant of that noble house which, no doubt, excited the jealousies of the reigning powers and rendered their situation very unpleasant, and would be deemed a sufficient reason for leaving their native country, as others have done before them. Still there are those that have asked why, as they were so pleasantly situated in Europe, they should have thought of coming to this country. To this and similar questions we can only give some of our own conjectures, never having conversed with them upon this subject. We may suppose for instance, that they might have had a predilection in favor of our own republican form of government and its free institutions, and that they would meet with that kindness and attention which *true merit* ever receives from an educated and enlightened community.

Others might have come to the resolution that a friend of ours did, that they would not live in a country where they were obliged to pay for that free and common gift to *all*, the light of heaven. Whether these conjectures will satisfy the curiosity of our readers,

we cannot pretend to say.—But of this we are certain, that they have come among us to adorn and beautify the firesides of our own happy home.

Our narrative, we presume, would be deemed incomplete, especially among the fairer portions of our readers, did we not give some account of their wardrobe, and those that are in the habit of considering that variety in dress, as well as in life, is the very spice of it, may be surprised and disappointed to learn that it consists of a single suit. This we allow, is of the most elegant and delicate texture, consisting of a beautiful dark green brocade or satin. This dress is constantly worn throughout the year, and though this is the general costume of the whole of the family, they are not so fastidious as to require every member to have their dress cut by the same pattern, leaving this to the judgment and good taste of the wearer, only requiring that they all be made of the same material.

They observe a number of gala days, which continue for several months in succession. Upon those occasions you may see them decked in their most beautiful jewels.

These ornaments are reserved particularly for such occasions, and are never seen at any other time. This may be an old tradition of their fathers, the remembrance of which they love to retain, and as they add such dignity to their appearance, we are not surprised they should wish to retain it. It is generally understood that on those days they expect and are much gratified to see any of their friends, and we find their levees attended by some of the most enlightened and elegant part of the community, who express their admiration of them in the most unqualified terms; we have sometimes feared lest that latent spark of vanity, so often accredited to our sex should be aroused from its slumbering at the many and flattering compliments made immediately in their presence. The number and variety of their ornaments are in proportion to the number of their families, every family wearing such jewels as designate to which particular branch they belong, differing in size, color, and brilliancy. For instance, the family of Madam Japonica Blanche are known by the particular kind of pearl they wear. These are of the most brilliant white, and much the largest of any worn; they are arranged with so much taste that they appear to make a part of her lovely self, though the profusion is such that upon any other person they might appear inconsistent with our ideas of the most delicate

taste. She has ever been a great favorite with the ladies, and we are informed that her ornaments have been sought for with great avidity, and purchased at an exorbitant price, to deck the brow of some of our fashionable belles, even after they have been worn by that lady. As for ourselves we scarcely know which of them the most to admire. When we turn our eyes from Madame Blanche in all her dignified elegance, to her beautiful sister, Lady Hume, surrounded by her lovely and interesting family, and observe the faint blush mantle her delicate cheek at the admiring gaze of the multitude, we feel inclined to yield to her the palm of victory, and to exclaim in our admiration of her, no beauty can surpass thine thou lovely one.

Others wear ornaments of different kinds, vieing with each other in beauty, some of the coral kind, others of the cornelian, and differing as far from any thing seen in our jewellers' stores, as a common pebble would from a diamond.

Many other interesting particulars could be mentioned, would time permit, but we cannot deny ourselves the pleasure of mentioning one large and interesting family of them residing at Dorchester, in the neighborhood of a friend of ours; this philantrophic gentleman has done much to promote their comfort and happiness, and make them forget that they are strangers in a foreign land. At his own expense he has erected a large and beautiful house, every way suited to their dignity and rank, and surrounded them with other distinguished foreigners, and has had several of their portraits taken by some of the first artists of Europe, in a very expensive style, others in wax, and said to be fine likenesses. For all this kindness and attention they are not insensible, but do all in their power to express their gratitude, and have called one of their fairest daughters after one of his own little loved ones.

One of this family have resided with us for several months, and we can add our testimony to their constant desire to please, and though this has been a child of misfortune, her short history may not be the less interesting. At the time she first visited us, she had two daughters, one quite an infant, the other at a more advanced and intellectual age, and as the powers of her mind began to expand she was the admiration of all who became acquainted with her. The infant lived but a short time, it fell from its mother's arms and survived the injury but a few days. Subsequent to this she and her

only surviving daughter were standing at the window to while away a melancholy hour, by observing the objects as they passed, her foot slipped, and they both fell to the floor. On entering the room we feared they were most seriously injured, but in assisting them to rise we were agreeably surprised to find they had sustained no material injury, and the young lady appeared as fair and beautiful as ever, and the fond mother, in all the pride of maternal affection was watching her expanding beauty with the hope that she would be soon brought out, as the fashionables have it, but whether she received an internal injury in her fall that seriously affected her health, we know not, but just at this interesting period she drooped and died, thus blasting the fond anticipations of all her friends. We can only add, that the mother still remains with us in all the silent dignity of grief. FLORELLA.

ART. II.—*On Laying out Gardens and Ornamental Plantations.*

CHOICE OF TREES FOR ORNAMENTAL AND LANDSCAPE PLANTATIONS.

MUCH art is required in selecting trees for planting ornamental grounds; as parks, lawns, foregrounds to country residences and such ornamental plantations. The planter should in this case duly consider the appearance such plantations will have when growing to maturity; as the design will then have its full effect. Present appearances have, in many cases, but little to do with the future, which is the grand object of landscape gardening.

The first consideration is the nature and quality of the ground to be planted, together with the different aspects and locations; these things must invariably be considered in order that trees which will thrive best may be selected for planting, and have a pleasing appearance. To accomplish this, such *only* should be chosen as are known to thrive in a similar situation and soil. *Native* forest trees will be found, in most cases, to answer the best purpose for the *park* and exposed plantations (with the exception of some few varieties of foreign trees) their natural properties being particularly adapted to this climate; consequently, they always assume a healthy appear-

ance, which is the greatest consideration in landscape scenery; as ornamental trees when in a sickly state, destroy that pleasing effect they are intended to produce.

In selecting trees from a nursery or elsewhere, attention should be paid to choose those that are of a well formed and regular growth, and from a situation where they have had free exposure to the *sun* and *air*: trees being grown too close together are always of a more tender nature than those in exposed situations, and are not so fit for being removed to an exposed place.

If trees are to be selected for planting of a large growth, care must be taken to choose them in such a manner that their present and future place of growth correspond. Trees from different situations are found to have entirely different properties; for instance, the oak, maple, elm, and indeed all kinds of trees where grown in an exposed situation are found to have protecting properties, corresponding to their natural location: their bark is of a thick, coarse nature, their roots are numerous and extend some distance into the ground, their tops and branches thick and spreading; this is natural to trees growing in an exposed situation: on the contrary, those growing in woods or confined places, of the same denomination as the above, have their bark thin, their branches *few* and on the top of the tree, their roots few in number and of a weak, slim nature. These facts should engage the attention of the planter, in order that the removing may be done in such a manner that their present and future soil and situation correspond.

I particularly recommend the planter clearly to investigate this subject, which is perhaps the best method of learning the physiology of plants; natural cases are always the surest guides to perfection. Nothing can be more pleasing to the horticulturist, than to reflect on the beautiful economy of nature, which imparts to the vegetable kingdom different qualities in the same genus of plants placed in different situations. The animal kingdom is in some respects similar, although more limited, which is accounted for, when we consider that they have a sensitive power and motion, and thus seek protection from storms and sudden changes of heat and cold. But the vegetable creation in all its natural locations is stationary, and consequently it has to endure the changes of the elements in its primitive place of growth.

Thus it appears, that trees and vegetables when removed, require

to be placed as much as possible, in the same aspect and in a similar location as they were in their infant state. And it should be the principal object of the arboriculturist to observe this rule as much as possible.

NATURAL HABIT OR FOLIAGE OF TREES.

The natural habit or foliage of trees, (*by which I mean their shape and various colors and shape of leaves and the like,*) requires some consideration, particularly where they are to be planted singly as ornamental *objects* in park scenery or on lawns. The best criterion that I can recommend on the subject is, that the planter should only investigate the habits of such trees that are intended to be planted, and those that are of a large size and exposed so that the sun and air have access to every part of them. Such as are too much crowded together, can never be said to be of correct habit, as will be seen in the oak when growing in confined places in woods and groves as before mentioned; it is then tall and slender, and has but few side branches, but when it is exposed it forms a neat tree of a hemispherical figure; the *Hickory* in open, exposed places forms a very beautiful semi-elliptical shape; the conical form is seen in the *Tulip tree* and the *Button-ball* when exposed: the *Balsam Fir* forms a fine pyramid of living green, and the *Lombardy Poplar* is portrayed as a complete spindle shape. To these many intermediate habits may be seen, as in the elm, ash, walnut, and chestnut, but any person who is interested in this part of ornamental planting having duly investigated the above mentioned, he will at once discover the habit of every tree sufficiently to be master of adapting them to the most suitable places. Practice in this case is the sure guide to perfection. I therefore leave this part of my subject to the consideration of my readers, with the pleasing hope that the will give the subject the attention it demands.

(*To be continued.*)

ART. III.—*On Water and Watering Plants.*

"WATER is one of the most considerable requisites belonging to a garden: if a garden be without it, it brings a certain mortality upon whatsoever is planted. By waterings the great droughts in

summer are allayed, which would infallibly burn up most plants, had we not the help of water to qualify those excessive heats. Besides as to noble seats, the beauty that water will add, in making *Jet d'eaux*, canals and cascades, which are some of the noblest ornaments of a garden."

"Sir Isaac Newton defines water (when pure) to be a very fluid salt; volatile and void of all savour or taste; and it seems to consist of small, hard, porous, spherical particles, of equal diameters, and equal specific gravities; and also that there are between them, spaces so large, and ranged in such a manner, as to be pervious on all sides."

"Their smoothness accounts for their sliding easily over the surfaces of one another."

"Their sphericity keeps them from touching one another in more points than one; and by both these, their friction, in sliding over one another, is rendered the least possible."

"The hardness of them accounts for the incompressibility of water, when it is free from the intermixture of air."

"The porosity of water is so very great, that there is at least forty times as much space as matter in it; for water is nineteen times specifically lighter than gold, and of consequence rarer in the same proportion. But gold will (by pressure) let water pass through its pores; and therefore may be supposed to have (at least) more pores than solid parts.

"Mons. L'Clerk says, there are these things observable in water, which naturalists study to know and account for."

"It is transparent; because as some are of opinion, it consists of flexible particles like ropes, which are not so close as to leave no pores; nor so entangled but that there are right lines enough to transmit the light."

"For since the particles are not joined close together, and are in perpetual motion, the very fine particles of light do easily pass through their right lines, unless the water be very deep, or be put into motion, by some outward cause. Then indeed the transparency of water is very much obstructed, and it looks of a cloudy obscure colour, as it is obvious to sight in a rough sea: For at such a time, the vehement agitation of the water disturbs their pores, and spoils their straightness."

2 "Water is liquid, but capable of being fixed: water seems to

be liquid for the same reason as other bodies are so. For since the particles of it are flexible, like ropes, and leave pores between one another, which are filled with finer matter, when this matter is put into a vehement commotion, the particles are easily tossed about every way: yet when the motion of this restless matter is restrained as it is in winter, then the water congeals into ice; whether this comes of cold only, or there be besides nitrous particles, which fall out of the air at that time, and with their rigidness fix the watery particles.

3. "It may be made hot or cold. The particles of water being as has before been said, ice, is soon dissolved by the motion of the particles of fire: for the particles of fire, getting into the pores of the ice do mightily shake the fine, flexible particles of ice, and restore them to their former motion in a little time.

"But if this water be set in cold air, the fiery particles will quickly vanish, and the water will become cold as before.

4. "Water easily evaporates by the heat of fire or air. This is because its particles are quickly separated, and got into motion; so that the airy particles easily carry those of the water about with them.

5. "It is heavy if compared with air and other bodies, but much heavier than air. It has been shown by various experiments that the gravity of the air, in the place where we live is to that of water, as one to eight hundred, or something more; so that water is about eight hundred times heavier than air. And for this reason, and for no other, a bladder, or other thing filled with air, can hardly be sunk under water; and indeed, to make air sink, there must be a weight added to it, that shall exceed the weight of the water, as much, and something more, than that of the water exceeds that of the air. Hence it comes to pass, that water easily supports wood, and vast ships fraught with the heaviest cargo; for the weight alone will never sink them, unless the goods and the vessel should make up a weight which exceeds that of the water; and as salt water is heavier than fresh, so it bears greater weight.

"Those things which are heavier than water, as stones, metals &c. when they are thrown into it, go straight down to the bottom; and as their weight is greater, by so much the quicker: while other bodies which are the same weight with the water, do neither float on the surface, nor sink quite down, but remain suspended between the top and bottom, as is seen in the carcases of animals.

6. " Water is insipid and without smell. The reason is, because its flexible parts slip gently over the tongue, and are not sharp enough to prick the nerves and affect the taste: but this is to be understood of pure water, void of all kind of salt; such as distilled water is, and next that of rain: for the most wholesome fountain water commonly derives a saltness from the earth; though in this place is not meant medicinal fountain water, the taste of which is more acute, but such water as is usually drank.

" And that it is without smell. The purer any water is the less smell it has; for the reason why the particles do not prick the tongue is likewise the reason why they don't affect the smell; the flexibility and smoothness of water, is such, that they cannot penetrate the olfactory nerves; fountain water has indeed some smell, but then it is a sign that such water is not pure.

7. " Water is subject to putrefy according as the place is where it is kept. Water will grow thick and stinking, by heat and rest, as we find it does in ponds and marshes, and in close vessels. But here it ought to be remembered, that this was what was spoken of before, as such, water is not pure, for unmixed water cannot putrefy. This is proved by distilled water, which may be kept very long without putrefaction.

"Rain water which is caught in clean vessels and presently stopped up close and buried under ground, is kept many years in countries where they want fountains. This shows that the cause of putrefaction is not in the water itself, but in other things that are mingled with it; because pure water, such as is distilled or comes out of the clouds, keeps sweet for a vast while. But then those vessels, in which such water is kept must be so well stopped, that the least fly may not get into them, and they must be made of such stuff as will not corrupt, such as glass or clay.

" But for standing water in ponds or marshes, that is corrupted two ways.

" By the nature of the soil, which often abounds with noisome sulphur, whereby the water is impregnated and comes to smell in warm weather; as it does at Amsterdam, not only in the trenches, but wherever the ground is opened for the foundation of houses. This putrefaction is owing to the soil, and not to the water.

" By the nasty things that are thrown into it, or bodies of insects which die in it; as also by the eggs of flies, which are dropped

about wherever they go, and breed worms. Water is corrupted in wooden vessels, especially at sea, by the sulphureous parts of the wood, and by uncleanly things, as flies, eggs, &c.

" Water penetrates the pores of those bodies, whose pores are wide enough to receive its particles. Thus it enters the pores of sugar and salts, so as to separate and quite dissolve their particles; but it cannot get into the pores of stones, or but a very little way; so that it only wets the surface, without diluting them; hangs on the outside of them because they are rough, and because the extremities of their pores are open a little way. But such bodies when they are wet are soon dried in the air, because the motion of the airy particles, carries off the soft and smooth particles of the water.

" It is observable that if bodies rubbed over with oil or fat be dipt in water, they get very little wet, because the roughness of their surface wherein the water should hang is smoothed and made even by the fat, and the mouths of the pores are closed up, so that there is nothing left for the watery particles to hold by, and therefore they must needs slide off.

" Dr. Cheyne observes, that the quantity of water on this side of our globe does daily decrease; some part thereof being every day turned into animal, metalline, mineral and vegetable substances, which are not easily dissolved again into their component parts; for if you separate a few particles of any fluid, and fasten them into a solid body, or keep them asunder one from another, then they are no more fluid; for a considerable number of such particles are required to produce fluidity.

" Most liquors are formed by the cohesion of particles of different figures, magnitudes, gravities and attractive powers, swimming in pure water, or an aqueous fluid; which seems to be the common basis of all.

" And the only reason why there are so many sorts of water differing from one another by different properties is, that the corpuscles of salts and minerals, with which that element is impregnated, are equally various.

" Wine is only impregnated with particles of grapes, and beer is water impregnated with particles of Barley, &c. All spirits seem water saturated with saline or sulphureous particles.

" And all liquors are more or less fluid, according to the greater or smaller cohesion of the particles, which swim in the aqueous

fluid; and there is scarcely any fluid without this cohesion of particles, not even pure water itself, as will appear from the bubbles that will sometimes stand on the surface of it, as well as on that of spirits and other liquors.

"Water adds much to the growth of bodies, in that it both renders and keeps the active principle fluid; so that they are capable of being conveyed by circulation into the pores.

"The learned Mr. Halley has demonstrated, that if an atom of water be expanded into a shell or bubble, whose diameter shall be ten times as great as before, such an atom would be superficially lighter than air, and will rise so long as that flatus, or warm spirit which at first separated it from the mass of water, shall continue to distend it to the same degree, but when that warmth declines, and the air grows cooler and withal specifically lighter, these vapours will stop at a certain region of the air, or else descend.

"Therefore, if it should be supposed that the whole earth were covered with water, and that the sun should make his diurnal course round it as now he does, he is of opinion, that the air would be impregnated with a certain quantity of aqueous vapours, which it would retain in it, like salts dissolved in water, and that the sun in the day time warming the air, that part of the atmosphere would sustain a greater proportion of vapours (as warm water will hold more salt in it dissolved than cold) which by the absence of the vapours at night would be discharged into dews.

"And in this case he concludes there could not be any diversity of weather other than periodically every year alike; the mixture of all terrestrious, saline, and heterogeneous vapours here being excluded, which he judges to be, when variously compounded and driven by winds, which are the causes of these various seasons, and changes of weather which we now find.

"But instead of supposing an earth covered all over with water, you suppose the sea interspersed about wide and spacious tracts of land, and also divided by high ridges of mountains, such as the Alps, the Appenine, and the Pyrenean in Europe; the Caucausus, the Imaus, and the Taurus in Asia; the mount Atlas of the Moon in Africa; the Andes and Apalatean mountains in America; each of which surpasses the usual height to which the aqueous vapours do of themselves ascend: and on the tops of which the air is so cold and rarified, as to retain but a small portion of these vapours, which are brought hither by the winds.

" Then the vapours thus raised from the sea, and carried by the winds over the low lands to those ridges of mountains, are there compelled by the streams of the air to mount with it up to their tops, where the water presently precipitates, gleeting down by the crannies of the stones ; and part of the vapours entering into the caverns of the hills, the waters thereof gathers, as in an alembic in the basons of stones ; and these being once full, the overplus water runs down at the lowest place of the bason, and breaking out by the sides of the hills, forms single springs ; many of which running down by the vallies or guts, between the ridges of the hills, and after uniting form little rivulets and brooks, and many of these meeting again form large rivers.

" Dr. Woodhouse has made these useful experiments of water following.

" He tells us, that he chose several glass phials, which were all as near as possible of the same shape and bigness ; that he put water into every one of them, as much as he thought fit, and took an account of the weight of it, then strained and tied a piece of parchment over the surface of each phial, and made a hole in the middle of it large enough to admit the stem of the plant he designed to set in the phial, without confining and straitening it so as to hinder its growth. This design was to hinder the enclosed water from evaporating or ascending any other way, than only through the plant that was in it.

[To be continued.]

Art. IV.—*Progression of Horticulture in the Vicinity of Boston.*

The winter having now made its appearance, and the ground being frost-bound, in a manner that little can be done out doors, the green-house is almost the only department that can be attended to in Horticulture. In this department, the new year is greeted with perhaps as fine collections of plants as have ever welcomed the lovers of choice plants and flowers.

December 18. The Misses Sumners, Milton. In calling on the above, after a polite invitation, I was most agreeably entertained by

the pretty collection of green-house plants cultivated by them; which have been collected from different sources in this vicinity, and many choice kinds have been obtained from the South. The green-house, which is a small snug concern attached to the dwelling house, contains many choice kinds of green-house plants; and this year a pit has been erected of twenty or thirty feet in length, for the purpose of growing the more hardy kinds of plants, as stock Gilliflower, Daisy, Wall-flower, and the like. In the garden, also, in which they take much interest, are many good kinds of hardy shrubs and herbaceous plants, and indeed every thing relative to floriculture appears to be ardently cherished by them. It is gratifying to see so much interest taken in floriculture by those who have the very best taste to appreciate the real beauty and utility of "Flora's riches." I hope every success will attend their enterprize, and that the pleasing results will cause others to follow their example.

J. D. Williams, Esq. Roxbury. A well constructed green-house, under the management of Mr Edward Burns, gardener; the house is of a fine open construction, partly appropriated to the culture of green-house plants, of which there is a good collection, and partly for vegetables, as lettuce, &c. for culinary purposes. I noticed several fine specimens of Rhododendrons, Roses, and many pretty things, that ere long will have a prepossessing appearance, under the correct treatment of the present management.

Charlestown Vineyard, corner of Eden street. This establishment, now occupied by Mr Thomas Mason, situated on Bunker hill, has long been celebrated for many fine varieties of fruit, and was first established by Mr David Haggerston, principally for the culture of the foreign grape, on trellis out doors, which for a few years answered a pretty good purpose, with diligent culture; however, owing to unpropitious seasons of late years, the culture has proved unsuccessful; and the culture of the grape has been abandoned for that of the plum.* The raspberry and the strawberry, which have been grown to great perfection, and the best kinds have been selected and introduced in the gardens. On the place are

* Mr Mason has been very successful in raising a fine seedling Raspberry, which he calls "The Grape," which is a superior variety from the Red Antwerp and Scarlet Rockingham. The fine specimens shown at the Horticultural Hall this season, have been an ample proof of its quality, and it can be recommended as a first rate bearer.

now extensive vineries; these being four hundred feet in length, of glass houses, principally for the culture of the grape, one of which is a large green-house, well filled with a good collection of green house plants. I noticed several fine flowers of the Double White Camellia, and a number of thrifty plants of different kinds of Myrtles, which, by the by, are as pretty and appropriate evergreen plants as can be fostered in a room or small green-house. To these may be added, an excellent collection of China roses, of which I shall speak more fully when in flower.

The plants are in a healthy, clean state, and it is much to be hoped, that as Mr Mason's whole dependence rests on his profession, he will meet a share of public patronage to reward his expectations.

Mr William Leathe, Cambridgeport, — An amateur in choice flowers, — who very kindly showed me his pretty collection of green-house plants, which are well selected. The Camellias are in fine order, and some pretty specimens of the Double White were in flower; Hume's Blush and the Double Striped, I never recollect to have seen in better perfection, which, by the by, when well striped, is one of the best flowers of the family.

Mr Leathe politely furnished me with the dimensions of his green-house, which is a clever constructed concern, and may, perhaps, be of some utility to those who may be constructing houses for similar purposes. The house is a span roof, the dimensions of which are as follows: the length inside in the clear is 34 by 116 feet; the sides and southeast end is boarded three feet high, on to which is about two feet sashes of glass, and the roof seems to form an angle of about 40°. In the centre of the house is a span staging, about 2 feet 6 inches from the floor, and 5 feet wide, of 5 shelves, four of which are 8 inches wide, bringing the top shelf in the centre of the house, which is 14 inches wide; next to the centre stage are two feet alleys on the sides, and next to them side stages of about 3 feet wide. At the northeast end is the furnace, with a return flue under the stage; to the furnace is also fixed a boiler, with revolving pipes, with hot water, so constructed as to pass through a box, 10 feet long, 2 feet 6 inches in depth, and 3 feet wide, which is filled with sand or soil, for the purpose of forwarding tender plants. The advantage of this house is, that every part is made useful, and the plants can be placed in almost any

position, and may be so placed as that even the most tender can be accommodated, so as to receive their natural temperature and location. E. S.

ART. V. — *On the Cultivation of Asparagus.* By Samuel POND, of Cambridgeport.

[We recommend to our readers the following communication of Mr Pond, which we are happy to give a place in the Register, as we think his remarks are well calculated to benefit those who are desirous of forming new Asparagus beds, or renewing old ones. While some horticultutist give their attention to one production and make improvement in that particular branch of culture, the interest or fancy of another person leads him to something of a different description Mr Pond has given his attention in a particular manner to the culture of Asparagus, and from the success which has attended his efforts, if we may judge from the productions he has presented to the public from time to time, and which we ourselves have witnessed, should infer that he has been eminently successful in the cultivation of this delicious vegatable.—ED.]

THE cultivation of asparagus, although so general,is, by no means, as well understood as it should be. Like many other vegetables, which have for years been cultivated, and which almost every gardener thinks he already raises to perfection and needs no further information in relation to their growth, it can still be wonderfully improved in its mode of cultivation. The immense quantity which is produced in this vicinity, for the market, and its superiority to that of former years, is a convincing proof, that its cultivation is now much better understood than heretofore and it is to be hoped that it will still continue to be grown of larger size and more excellent quality. In private gardens, in particular some fine specimens have been produced within the last two or three years, and, with little more care and expense, the market gardener may as easily supply his customers with this estimable vegetable in equal perfection. There are several kinds of asparagus some of which have been lately introduced and have not yet become very well known. That which I have grown, and which I have proved to be of most excellent quality as well as of monstrous size is called the giant asparagus. It is as yet but little known, and consequently, not very extensively cultivated. But so superior is it to the old kinds generally grown,

and of which hundreds of plantations now exist, that it must take their place soon. Some cultivators do not like to destroy fruitful beds because the kind is rather inferior; yet I have no doubt but they would be more amply repaid in the end, if they were to make new plantations, and as soon as they came into bearing, entirely destroy the old ones. Its large size and fine appearance together with its tenderness and flavor, recommend it to the notice of every market gardener, who is desirous of any emulation for his productions and to every gentleman and amateur, who is ambitious of supplying his table with the most excellent kind. There has been considerable written upon the culture of asparagus, and there are various opinions respecting the best method of cultivation. But leaving the reader to choose which system he pleases, I proceed to detail the method I have adopted and which I have found to be completely successful. It is difficult to persuade those who have for years continued to grow any kind of plants to tolerable perfection to adopt new modes with the hopes of improving upon the long-trodden path. In the month of April or May, select a spot of ground sufficiently large to plant the number of roots intended. If the plantation is to be large and intended for supplying the market, the ground should be ploughed to a good depth; if for a common kitchen garden it should be trenched to the depth of fourteen inches. Make the surface of the bed level, after this operation is performed, then proceed to mark places to dig the trenches for the roots; they should be two and a half feet apart; stretch a line the whole length of the bed: draw the next two and a half from this, and so on to the whole width. Then proceed to throw out the soil twelve inches wide and twelve inches deep, laying it up in ridges between each trench; after this is done, throw in three or four inches of manure, level the same, and add about one inch of soil on the surface scraped from the sides of the trenches; level this also, and all is ready for planting. There are different opinions respecting the age at which roots should be planted; some gardeners prefer one year old roots, some two, and some even three, when it is desired to have beds ready for cutting as soon as possible set out; but I am doubtful whether much if any thing is gained by this; for my own planting, I always prefer those of two years of age, and rather than set out older ones, I would have those of only one year; select such only as have good fibres and a

fine bold crown. In setting out, place them six inches apart, and lay out the fibres in regular order, and not tumble them together, as is too often done to the great injury of the plants. Much of their future success I attribute to the care given in setting out. When all are planted, cover them with about an inch of soil, and the work is all finished. The plants throughout the summer must be kept clear of weeds and occasionally hoed, and by these operations and the summer rains, the trenches will by October be filled up as level as the bed was before setting out the roots. The practice adopted by most, if not all growers of this vegetable, is to set out the plants in deep trenches, and cover them at once six or eight, and in some instances twelve inches deep. Nothing can be more injurious than this; for a great part of the roots seldom make shoots strong enough to force their way through this depth of soil, and consequently perish or, if they come up they are weak and small and never afterwards attain to any size. It is an old system, and, like that of growing celery, now generally exploded, it should be likewise. In the method I have adopted, the roots have but a slight covering of earth when planted, and the young shoots come forward very fast; as they increase in vigor little more is added, till, by the assistance of the heavy summer rains which wash the soil from the ridges into the trenches they are completely covered. Scarcely a root has ever failed to grow. Upon the approach of cold weather and after the tops have been killed by frost they should be cut down even with the ground and carried off: the bed should then be covered with two o three inches of horse manure, which should remain on until spring, when it must be forked into the surface of the bed.

In doing this be careful not to injure the crowns of the roots. Just before the shoots make their appearance, give the bed a good raking which will destroy the weeds that are starting to grow. It is a bad practice to plant asparagus beds with radishes, lettuces, peppergrass, &c. as they exhaust the goodness of the soil. The first year after planting, a few of the strongest shoots may be cut, but very sparingly, as the roots will be all the better afterwards. Continue to pursue the same system of culture every year, and the roots will rapidly increase in vigor. The soil that asparagus seems most to delight in, is a light and rich one,neither too wet nor too dry; when the soil is shallow the trenches must not be dug so deep as above recommended. The manure I made use of was fresh from the hog-pen, and some

what strawy; but I presume any good manure would answer equally as well. The asparagus is a marine plant, and a light dressing of marsh mud in the fall or spring seems to increase the growth of the plants. I would recommend it when it can be easily obtained. Beds prepared in this manner and yearly attended to will last for a great length of time, and the produce will be of superior quality. When I planted out my bed I preferred plants of one year's growth to older ones; they can be set out with more care, for this kind will, when spread on the bottom of the trench, require the trench to be from ten to twelve inches wide on the bottom, so as to spread your roots each way; I have seen beds set of three year old plants from which enough could not be obtained to pay the setting out. When the roots are so large, it is impossible to set them out; even if they were so good, the old roots decay, and fibres start anew. In the following spring after setting my bed of plants of one year old. I cut grass of a good size; since then I have frequently had six spears of the common length, which would weigh one pound. I have occasionally exhibited specimens from my bed at the Massachusetts Horticultural Society's room. SAML. POND.

Cambridgeport, Dec. 25th, 1837.

Art. VI. — *The Forest Treasures of Guiana.* By C. Mackenzie.

From various papers written by Dr Hancock, of Welbeck street, as well as from Mr Schomburgh's journal of his recent expedition into the interior of Guiana, much useful information may be gleaned, respecting the vegetable and woody treasures of those hitherto unexplored regions of South America.

About thirtyfive miles from the mouth of the Essequibo, that magnificent river is only eight miles broad, and both banks become, for the first time, visible. Indeed, here it more resembles a lake, studded with numerous wooded islands, bounded on either hand by a dense and almost impenetrable forest of timber and fruit trees, rich in all the exuberant verdure and wildness of a virgin soil and tropical sun. Ascending the river about one hundred miles, the breadth is no more than about 1,520 yards, here the forest reigns

triumphant; all traces of civilization are left far behind; above, around, there is one dense mass of foliage. Pre-eminently above the other trees towers the majestic Mora, with its dark-leaved branches; the gigantic Mimosa, of the western hemisphere, equal, if not superior, to the British oak, for the construction of shipping; the scarcely less stately, and equally useful Saouari (the *Pekea tuberculosa* of Aublet), which bears a rich and nutritious nut; the Sirwabally, of the family *Laurineæ*, excellent for planking vessels, and resisting the attacks of worms and insects; several species of Wallaba (the *Dimorpha falcata* of Linnæus); *Eperua* of Aublet, and *Pauzeria* of Willdenow; the Cecropia, or trumpet tree; the water Guava (*Psidium Aromaticum*) which replaces the mangrove of the seashore, and yields an aromatic leaf, very useful for the cure of dysentery; and many stately trees, hitherto unknown and undescribed, of which Dr Hancock gives the Indian names of upwards of *fifty!* Here, too, is seen the parasitic wild vine, or bush rope, twisted like a corkscrew round the loftiest trees, intertwined like the strands of a cable, or drooping to the ground and again taking root, and thus, as it were, securely anchoring the parent, or supporting the trunk against the fury of the sweeping blast; likewise the wild fig tree, which is an unusual parasite, occasionally taking root in some of the topmost branches of the Mora, and deriving nourishment from its sap; and this, again overrun by varieties of the climbing vine. The whole mass of luxuriant vegetation is rendered bright and gay, by the brilliant blossoms of the Hayowa, or incense (the *Amyris Ambrosiaca* of Willdenow), which perfumes the forest with its sweet smelling resin, possessing the most valuable medicinal properties, both in its gum, its flowers, and its bark; by the scarlet passion flower, and others of the same species, as *white* as snow; by the Combretum Racemosum, and several species of Bignonia, the most beautiful climbers of our European conservatories, hanging in natural festoons; and by the crimson flowers of the Bignonia Cherere of Aublet, which is conspicuously beautiful here, where all is bright, magnificent, and lovely.

The general wall-like vegetation on each side of the river, is occasionally broken by the inroads of the stream undermining its foundation, and laying prostrate many a lofty tree whose withering trunks occasionally project some distance over the water. A few miles further up, Mr Schomburgh found a large cluster of Lanah

trees (*Maripa*) which yield a beautiful blue dye, with which the Indians are accustomed to paint their faces and dye their clothes. A few miles farther up, and south of the Warapoota Falls, he found the Kamasakata, a tree from fifty to sixty feet high; the Warrakarro, whose seeds resemble the *Abrus;* the Acowri, or bread tree, and several species of the Wallaba. "Above the Rapids of Twasinkie," says the traveller, "we saw sugar canes two inches in diameter, and with stems of seven feet before the branching of the leaves; Coffee growing luxuriantly; and various timber trees whose height and girth surprised me; accustomed as I have long been to the fertility of a tropical climate."

Beyond the Twasinkie mountains, he found among other orchideous plants, one which was entirely new to him; its flowers were an inch and a half in diameter; the petals of a rich purple and velvet-like appearance, the helmet of the same color, and the labellum striated with yellow.

Above the rapid of Cooribooroo, Mr S. landed on the eastern side of a large island, where the first plant he saw on landing, was a Mikania Angulata; and in its vicinity, the famed Mikania Guaco. He had thus an opportunity of comparing the two species—both of which are medicinal. The young leaves of both possess the *bitter* much more than the old ones. The natives call the latter Errawarang, and use a decoction of the leaves in syphilis; but their property as an antidote to the bite of poisonous snakes is not known to the Indians of this part of Guiana. Indeed, the reputation of these leaves as an antidote, is probably fabulous, for the real Guaco of the Indians consists chiefly of different species of *Aristolochia*, and such other bitter and pungent diaphoretic plants and roots. None of these, however, are to be relied on, without previous scarification or excision of the wound. On this important subject to travellers in tropical countries, the reader is referred to a valuable paper by Dr Hancock, in the Journal of the Royal Institution for 1829-30. — *Gardener's Gazette*.

Art. VII. *Review of Hoare's Culture of the Vine.*

[Concluded from our last.]

The 7th chapter commences with the construction of *walls*, for which many kinds of materials are recommended as flint, brick, &c. The different heats attracted by different colors, are also described and commented upon — with the different lights likely to be the best adapted to the purpose of producing good crops. Respecting the construction of walls it requires but little consideration, for certain it is, that a good brick-wall retains every quality requisite to the purpose, and if a coat of whitewash is given, an advantage will be gained by destroying insects and creating a fine healthy air to the vines :—other materials to train grape-vines to, as boarded fences and the like, may be considered under the head of *protection* ; they therefore, require no comment, *only*, that the better they are built the more likely they are to be of benefit.

In continuing the 8th chapter the different modes of propagating the vine are laid down, as by layers, by cuttings and the usual methods so often described and most generally followed with good success if properly attended to ;— this part of the book deserves a careful reading by such persons as are unacquainted with propagating grape-vines ; for the system is so clear and practicable, that a certain success will be the result of adopting it in a faithful manner.

The following chapters comment on the pruning and training vines ; which like the before named are after a system that has been fully described by the best of European writers in a similar manner, and the whole as the Calendrial list and the like is a repetition or a following as it were of other authors. I shall therefore close my *review* with some critical remarks of *comparison* to the disadvantage the system is likely to meet with in this climate, and leave the reader to judge of their correctness or prove them by *experiment.*

In comparing Hoare's system, it will be seen that one of his principal objects is to ripen the wood in the best possible manner ; by cutting the vines in the fall, unnailing them and exposing the wood to the winter ; which he considers a material object in their fruitfulness in the ensuing season. The severe winters of this climate will not allow of this process : therefore, the foreign grape has to be pruned in the fall and to be covered with *earth*, or other materials

to protect it from the winter's severity, and the wood being in the ground for a long time it rather becomes soft than more hard, therefore is a disadvantage, saying nothing about the trouble, which will be considerable in taking the vines from the walls of houses and the like places.

The observations on the over bearing of grape vines and the disadvantages therefrom are written in a clear and practical manner which will be found a good criterion either in doors or out, in any country or clime where the grape will flourish. And let me remind the reader that nine times out of ten, this evil is apparent even in the culture of the most hardy kinds of grapes cultivated as the Isabella and native varieties. Nature in this case is at first encouraged by indulgent treatment, and then crippled down by an over burden of fruit which she is incapable to mature by her own agency. The table or scale of the different weight to be allowed according to the certain girt of a vine will be found to be of a great service to the cultivator — and the aspect and manner or utility of protecting the grapes, are subjects which deserve especial 'notice from those who intend to adopt the system.

In closing these remarks I would caution those persons desirous to cultivate the grape out doors or upon open walls, for it is my firm opinion that the system (although in many cases is an excellent one) *will never answer this climate in a general way,*— perhaps in some favorable situations with the most attentive and strict attention good grapes may be obtained in favorable seasons; but then the expense and trouble will be quite equal to the expense of a grape-house which I believe to be the only sure medium of obtaining foreign grapes to any perfection for a series of years, and in this case I should recommend that the spurring system be entered into as soon as possible.

The weekly or calendrial list it must be noticed is nearly a month earlier, than in this climate, therefore it will answer only as a guide in the operation of firing, &c., and to say anything here relative to the difference of climate will be altogether useless.

Should a second edition of the work be called for, which it is most probable it will as the subject is now engaging many persons, I would suggest to the publishers to adapt the work to this climate in a more condensed form by excluding the winter management, cal-

endriel list, &c.— and filling the same space with a practical treatise on the management of the Grape-house or vinery—which would make it one of the best works of the kind in print.

Art. VIII. — *Management of Plants and Flowers in Rooms.*

By Edward Sayers.

The present season is perhaps the most precarious period in the management of choice green-house plants and flowers in rooms and small green-houses; as plants at this time are sheding their leaves and generally in a *dormant* state; therefore, they do not require either too much *heat* or *water*, which in many cases starts the growth of soft wooded plants in a feeble state, as the Geranium, Daphne and the like: on the contrary, if plants are kept too *dry*, which in many cases happens in warm rooms, the leaves drop off, and contract a feeble habit, and the bark shrivels up on the young branches.

The best method and criterion is a medium, namely: the temperature should be, if possible, regular from forty to fifty-five deg.; the soil about the plant should be kept moderately moist, too much water saturates the earth in pots and generally rots the roots; if plants are kept too dry, the roots contract and naturally become weak, and are incapable afterwards of extracting whatever nutriment may be applied in a free manner to nourish them. The best criterion to water plants is to give a little at a time, as the earth dries in the *pot*; such pots as are very moist and saturated, should be dried by working up the top of the pot with a fork, or other instrument. All dead and decaying leaves should be, at all times, taken from the plants as they appear: dead leaves often contain many insects, therefore, should be removed. The plants should also be often examined, and cleansed of any scaly or other insects that appear on the leaves, with a spunge and warm soap suds, made from soft soap. Every opportunity should be taken to admit air of a fine, mild day, and they should be so placed, if possible, as to have the sun in the forenoon and middle part of the day. A semicircular stage, with running castors, is the best, which can be moved, to any part of the room, at pleasure.

At this season of the year plants are much refreshed by adding a little fresh, rich, earth on the top of the pot.

Art. IX — *Call at M. P. Wilder's Green House, Hawthorn Grove, Dorchester.*

In a previous communication, we have dwelt largely upon the magnificent collection of Camellias in possession of the proprietor of this establishment. We thought the arrangement of the house very good, when we visited it last winter; but since that time the Camellia apartment has undergone a material change; the walk removed forward, the stage taken down in consequence of the large size of the plants, and all arranged on a border covered with sand. The appearance of the house and the beauty of the effect is much improved. Much credit is due to Mr J. Donald, the intelligent gardener, for the taste he has displayed in the disposal of the plants, and for their general appearance of health and vigor. The houses or apartments are three in number. The first, or eastern apartment, is devoted to Ericas, Geraniums, Roses, &c. The second, or middle, to Camellias, Acacias, Rhododendrons, Azaleas, &c. The third is the stove where the more tender plants find their congenial climate.

We will first direct our readers to some of the plants in the first section of the house, although in a collection so large, we feel incompetent, without more time than we are able to bestow, to do justice to it, as we have never seen an assemblage of plants so rare and fine; in our opinion it exceeds any other in the country. In this apartment, as well as the others, we found the plants had made a vigorous growth the past year. The collection of Ericas consists of from thirty to forty species, in several hundred plants. Epacris impressa, Crowea saligna, Erica arborea, E. canaliculata, E multiflora, and E. carnea were in bloom, also several plants of Lechnaultia formosa, with beautiful scarlet flowers, in bloom the whole year, and not commonly met with in the green-house. A fine plant of Prostanthera purpurea, five or six feet high, was just coming into flower; this is entirely new. In this house also are plants of Maraultia, Hersteria, Phyllica pubescens, Dylwinia sp., Beaufortia decussata, Lambertia formosa, three varieties of the Protea, two varieties of Grevillea, Gnidia simplex, two varieties of Calothamnus, Verbena Tweediana (new,) Daviesia corymbosa, several varieties of Diosmas, Polygalas, Podalyrias, &c.

The collection of Geraniaceæ comprises all the new and popular sorts, consisting of about seventyfive varieties. This number will probably be increased by new varieties from seed, as we saw a collection of one hundred and fifty seedling plants, all of which the gardener expects will bloom the coming spring: these have been raised from seed of the best sorts, the flowers of which had been cross impregnated from other fine kinds. Seeds have been obtained of Dennis' Perfection, the plants of which resemble the parent in appearance and habit.

The collection of China, Tea and Noizette roses, comprise seventy or eighty kinds, none of which are yet in bloom. Among the most desirable and new sorts the gardener gave us the names of the following Teas, viz: Triumph Luxemburg, Triumph Bolwiller, Triumph de Arcole, Countess of Albermarle, Hymeneè, Faquir, Lamarque, Moreau, Jaune panacheè, Belladonna, &c.

Of China; Bengal Triumphant, Bourborn Augustin, Lady of the Lake, Moliere, Belle Alliance, Belle Chinoise, Gloria de France and many others.

Of Noisettes; Amie Vibert, Lee, Lafayette, Bourborn, Lady Byron, &c. &c.

We observed with much pleasure, in this apartment, a variety of the popular and much admired flower, the Pansy, in pots; as they are always in bloom, we think they add much interest to a collection. A plant of the Sarracenia purpurea, taken from a meadow, in a pot, exhibited its very singular leaves, and were it not indigenous, would be considered a very desirable addition to the green house on account of its curious structure.

Of the Lemons, Oranges, Bergamias, and Bigaradias, there are more than twenty varieties.

As the Camellia or central house is entered, the whole assemblage of plants is viewed at a single glance, and presents an imposing sight. The whole collection of Camellias consists of nearly one thousand plants, of about three hundred varieties; embracing all the new and rare sorts that could be obtained from England, Germany, and France. The gardener informed us that Mr Wilder was expecting daily, some very remarkable varieties from Belgium, which are thus spoken of: "But of all the Camellias, now most sought after in this country it is Camellia King, and C. Palmer's Perfection; the former I paid, last autumn, twenty-six guineas with

seven leaves, and the latter ten guineas with two leaves. Camellia King has clear white flowers with regular scarlet stripes and points, the centre yellowish, petals undulated, being very full and perfect. C. Palmer's perfection is said to be the most distinguished flower ever imported from China."

But few of the Camellias are at present in bloom; we noticed punctata, fimbriata, concinna, variegata, althæ flora, alba plena, Lady Hume, Mesteri, anemone, flora alba, Parmenteri grandiflora, Press' eclipse, &c.

Of the new and most distinguished Camellias that will bloom this season, for the first time in this country are, Frankfourtensis, Triumphans, Latifolia nova, Sweetiana vera, (English,) delicatissima, picturata, floribunda, Donkelarri, &c. Some of the Camellias are very large. The variety Lady Hume's Blush measures about twelve feet in height. One Double White measures ten feet in height and about fifteen feet in circumference, with several hundred flower buds yet to expand.

Mr Wilder has taken much pains to raise from the seed of some of the choicest varieties, crossed by others of equal value and possessed of different qualities, a numerous race of plants, amounting, we were told, to about two hundred. Some of them are two and a half feet high, with remarkable luxuriant foliage, a leaf of which measured, on one plant, five and a half inches by three, giving promise of some beautiful new variety. One young plant, the seed of which was sown only three months since, had started six inches, apparently possessing great merits: it is from the variety Colvillii impregnated with elegans. We see no reason why a number of fine new varieties may not be expected from these plants, as any which have appeared from foreign countries.

The Camellias predominate in this house, but many other beautiful plants are intermingled. The collection of Rhododendrons, Azpleas, and Magnolias here is very large. Of the Rhododendrons there are from twentyfive to thirty species and varieties many of which are in no other collection and of recent introduction. There are several large plants of R. hybridum, one of which measured ten feet high and about twenty in circumference on which are nearly one hundred flower buds, which when expanded will truly be a magnificent object. The varieties of R. aboreum, are album, roseum, hybridum, pallidum, elegantissimum, incomparabile, superbissimum,

caucausicum, Smithii Russellianum, Cunninghamii, novum, niveum, pheniceum, Keteleeri, Fromontianum, and others. The Rhododendrons showed a vigorous growth and luxuriant foliage: one leaf of the variety Smithii measured 11 1-2 inches by 3. One of the hybrid varieties, var. Nazarethi, with variegated leaves we very much admired. Of Azaleas indica there are twelve varieties: among the new ones are Smithii coccinnea, ignescens, Vandesia, Gillinghami, and Youngii. Of Magnolias, there are more than fifteen varieties: M. conspicua, a large plant eight feet high displayed a number of its clear white fragrant flowers. Of the genus Banksia there are three kinds: Metrosideros seven: Melaleucas nine: Arbutus six: there are also large plants of Clethra, Diosma, &c. Of the Pæonia arborea, (tree pæonia) the collection is very rare and extensive, few of which are in any other in this country: some of them are P. purpurea violacea; P. pleno purpurea, P. lilacina plenissima, P. albida plenissima, P. albida semiplena, P. stellata artropurpurea pleno, P. purpurascens, P. monstrusa alba plenissima. Of the latter variety, the Brothers Baumann, of Bolwilles, France who raised it, remarks: "Endeavor sir, to preserve this, for it will be many years before you will see another that you will so much admire. Since an extraordinary mishap has befallen the propagation of this plant, and we have but one remaining, having given you the better half."

A large collection of Acacias are interspersed with the Camellias and other plants numbering more than thirty species, some of them very large, measuring twelve to fifteen feet in height, with nodding heads, graceful form and diversified foliage giving the whole a light and tasteful appearance. Among them are A. spectabile, pubescens, linearis, virgata, conspicua, Houstoni, decurrens, lanceolata, decurrens, longissima glauca, cabra, platyphyllas, several varieties from the Cape of Good Hope, two from S. America with red flowers, &c. Most of them are budded for flower and will present with the Camellias, Rhododendrons and Azaleas a mass of bloom unrivalled in the country.

In the stove we found a large specimen of Doryanthes excelsa, not yet flowered in America. We have had an account of one of these rare plants which flowered at Edinburg, that produced a spike of more than twenty feet in height, on which were innumerable flowers. Here is a plant of the Strelitzia augusta and several large plants of S. reginæ, Pandanus odoratissimus (screwpine) six feet in

height, Chemerops humilias, Auracaria imbricata (Chili pine) Cycus revoluta, (Sago palm,) Phrinium Zebrinum, a plant with broad striped leaves of much interest. Astrapa Wallichi, Buonapartea elegans, Testudinaria elephantipes (Elephants foot,) Poinsettia pulcherrima, formerly Euphorbia Poinsettia, displaying its splendid scarlet bractes and curious flowers; two large plants of Entilla; the New Zealand cloth plant, Brugsmansia sanguinea: five varieties of Hibiscus sinensis — some of them in flower; four of Justicias; two of Ardisias; three Ficas; the variety elastica is the plant which produces the India rubber; three varieties of the Laurus, viz. L. campbor (Camphor tree,) L. cinnamomum (Cinnamon tree,) L. tomentosum; Coffea Arabica (Coffee tree,) Ginoria caribeum, Pleroma heterophylla, Exostemma caribeum, three varieties Tillandsias. A large plant of Hibiscus splendens, ten feet high attracted our attention;— we were told it was raised from seed obtained from the Cape of Good Hope, which was sown last year We have seen the following description of this plant which we copy from Edwards' Botanical Register. "This I consider the king of all the Australian plants, I have seen it twenty two feet and a half high; the flowers measured nine inches across; they were of the most delicate pink and crimson color and literally covered the whole plant." Among the climbers we noticed Ipomea Horsfalli, which had been in flower six weeks, and had a cluster of buds and flowers numbering sixty or seventy; color, sparkling rose with white pistils; the plants has attained the height of seven feet and will probably extend itself over a great surface, and when covered with its rich clusters will be a splendid object. Clianthus puniceus planted outside of the house and brought in and trained up the rafter, has grown six or seven feet from a cutting last spring, and is in bud for flower. Combretium purpureum, another beautiful creeper, has made a growth of twelve feet the present season. Combretium grandiflorum is in the collection, also a plant of Tacsonia pinatistipula another new creeper of the Passion flower family. Of the Cacti, Echinocacti, Cereus, Epiphyllum and Optunia, the collection is most complete. Of the new varieties of Cactus we noticed C. Vaucherii, C. coccinneus, C. Paraguayensis, C. Napoleonsis two unknown species from the W. Indies recently received, one of which is quite a large specimen having been brought home in a large tub with its native soil. A large plant of C. speciosissimus trained to the wall seven feet high. C. Peruvianus, grafted

with C. truncatus and two other species will be a splendid affair when in bloom: the plant is six feet high — C. truncatus grafted on C. triangularis in full bloom, forming a bushy head four feet in circumference made an imposing appearance. Of Echinocacti, three species. Epiphyllum Ackermanii and Cactus speciossimus have been cross-impregnated with each other and both are bearing large capsules of seeds nearly ripe, and as usual, at that time, delightfully fragrant and said to be delicious to the taste.

The collection of Orchideous plants, embraces many choice and rare specimens in a very healthy and flourishing condition, growing mostly in pots of moss and rotten wood. We give the names of a few of the most desirable: Zygopetalous Mackiana, now Eulophia Mackiana; a species of Dendrobium with purple flowers; Oncidium papilio, Oncidium flexaosum, a plant from which Mr Wilder exhibited a branch at the Horticultural Society rooms last season; over ninety fully expanded flowers have been counted upon the plant at one time, and was in flower several weeks. Of the genus Cypripedium of the same family, are C. insigne, C. venustum, C. spectabile, C. pubescens, and C. calceolas; Bletia, three varieties.

The collection of Amaryllacæ is very extensive, consisting of upwards of one hundred species and varieties, from which have been raised about two hundred seedling plants in various stages of growth.

Of the genus Crinum there are ten species and varieties: plants of C. amobile, C. scabrum, and C. augustum are very large: one variety received from England for C. pedunculata has not yet flowered, but is said to be very fine. The bulb of Brunsvigia Josephina, measures one and a half feet in circumference.

Of the Gladioli, a great variety: of the new sorts are G. Colvilli, G. floribundus, and G. pundibundus: the last named, a superb variety, figured in Paxton's Magazine of Botany. Time would fail us to enumerate all the fine plants in this truly magnificent collection, and we fear we have already trespassed upon the patience of some of our readers, but hope we shall be excused, as having begun to give an account of the place, and having spent some little time in looking at the plants, we thought best to give a full description.

J. B.

Art. X. — *The New Year.*

There are but few subjects that bring to mind more forcibly the changes and events of things than the New Year, which dates down another *item* in our existence, and calls to recollection the past events and prepares the mind for the present. Among the many subjects, nothing is more prominent than *Horticulture*, which revolves and gives new features as the different seasons roll in perpetual progression — each year brings with it something anew and gives the closing scene to the past.

Now the vegetable kingdom is in a dormant repose — the trees of the forest have been disrobed of their annual vesture by the cold chill of the season, and *Pomona* has parted with her golden stores of autumn to enliven the cheerful "fireside" of winter — and all, all, serve to welcome the new year. Still the *landscape* appears cheerless; for the trees of the forest are disrobed, and their bare and naked arms are outstretched to the cold blast of winter. The "*Native Flora*" has hidden her purest *gems* in embryo, beneath the cold vesture of winter's attire: but as the vernal season advances, and *sol* casts his more *genial* beams on the parent earth, then the vegetable kingdom begins its progressive motion and the frozen vines of winter, that have long been inert, flow through every channel, and clothe every plant and tree again in its own natural beauty.

At this time the greenhouse is the only representative of "Flora," for there vegetation is in a continual operation, and the assemblage presents the most pleasing features that are natives of different countries; and contrast the mellow scenes of the more genial climes with the cold, wintry appearance of the present. But many will say "what is the use of flowers," meaning their useful qualities as relates to our domestic concerns; to such we may answer "that flowers are the very *essence* of the fruit and vegeteble," and let them reflect that the fruit which so merrily passes around the board at new year, or that cheers the cold winter nights with the merry smiles of gratitude, were but a short time ago fostered within the gay flowers of the orchard: and can anything form a more charming feature of the season, in the landscape, than a fine apple orchard in flower, which at once enlivens the surrounding scenery and imparts an impression of the real comforts of life?

But to conclude, I must say a few words to, and concerning Horticultural Registers and their patrons. I earnestly hope the coming year will increase the zeal that has so gradually been improving, and so effectually added to the comforts of all classes and denominations of people. Indeed, Horticultural Registers are the principal channels through which the *science* and general improvements flow, from one part to another, they unite as it were, in many cases, the best of feeling among the best advisers of domestic comforts; and have been the means, through their different correspondents, of transfering many useful things that could not have been done so conveniently by any other medium.

I hope, too, the new year will bring new contributors in the list of correspondents, and that some of the *fair* patrons of *Flora* will contribute some pretty things to the Magazine, which would add much to blend that pleasing feature that is always the most enlivening in Horticulture, and give a *zest* for others, to unite in making each new year a new era in Horticulture.

Art. XI.—*Flowers.*

The love of flowers appears to be very generally diffused among all nations. They are the friends of all — the rich and the poor. The prince courts their presence to grace his pleasure grounds. In his domains they bloom in lofty splendor and gorgeous magnificence. They are arranged according to the rules of art, and the prevailing fashion of the times. At one era they were clipped and pruned, and made the most grotesque figures, which only showed how vain for man to endeavor to improve the beauties of Nature. But the absurdity of this was soon seen, and the practice abandoned.

Around the dwelling of the humble cottager flowers bloom in all the wild luxuriance of nature. They are free from all the restraints of art; although they have not the same splendor of hue to boast as those which cover the domains of the prince, yet their beauty is not less. It has been said by travellers that they could distinguish a pure minded and more intelligent family, from the appearance of the house and grounds in this particular. The difference was striking — the house of the more intelligent was surrounded by

flowers — the windows displayed them — vines were twined with care and taste over the dwelling. Another presents a different spectacle! The weeds and briers are allowed to hold their dominion. In short, Solomon's picture of the garden of the sluggard is exactly verified.

The cultivation and study of flowers appears more suited to females than to man. They resemble them in their fragility, beauty and perishable nature. The Mimosa may be likened to a pure-minded and delicate woman, who shrinks even from the breath of contamination; and who, if assailed too rudely by the finger of scorn and reproach, will wither and die from the shock.

Flowers possess, also, a great moral influence. Who is there with feelings, however vitiated, that does not feel refreshed and revived when entering a garden filled with these beautiful creations. To him who leaves a scene of gaiety — a crowded, heated room, — and wanders forth from the scene of art to gaze on the charms of nature, where the breath of these lovely messengers greet him, how soothing their influence. How much softer and better his heart becomes! How many remembrances are called up which before lay dormant in his heart! How humbled, how subdued he feels! All the proud visions of ambition and distinction vanish. He asks himself, if he is indeed the same who a few moments before had been panting and stirring in the ranks of Fashion. Now he wishes never again to be in her presence. He thinks he could live and die in some peaceful, retired spot, surrounded by the flowers which his own hand would cultivate. There he would be happy,

"The world forgetting,
By the world forgot."

It is strange what thoughts come thronging to our minds at the sight of some faded flower which we have preserved. It recalls the friend who plucked it; the words that were spoken; the bush upon which it grew; the home which we have left; the spot rendered sacred by its associations. All these are called up — and by what? A withered flower! One who knew not its story would scatter it to the wind and think not of the tale it could tell to some hearts. It is a connecting link in the chain of memory, and it adds another and another till every circumstance is presented. Flowers are bright spots in life's journey.

"In Eastern lands they talk in flowers,
And they tell in a garland their loves and cares;
Each blossom that blooms in their garden bowers,
On its leaves a mystic language bears."

It is strange that this language should not have been more cultivated. They seem to be a very delicate medium of communicating our thoughts. Censure would not appear to be so harsh when conveyed through a lovely flower. The words of love would flow still more soft and gentle. In this way all our feelings and thoughts might be made known.

"Then gather a wreath from the garden bowers,
And tell of the wish of thy heart in flowers."

Every leaf, every flower, even the smallest and simplest, when examined, lead to thoughts of the Great Creator. If there was nothing else to prove the wisdom and goodness of God, these would do it amply. Could chance form the varieties of leaves which lend so much beauty to our forests? Did chance give the Lily its whiteness, or the Rose its beautiful hue? Who will be so blind as to believe that it did?

These simple and beautiful creations may give us many a lesson. They teach the frailty of human life. The Lily of the Valley, when it meets our eye in some secluded glen, breathes forth a lesson of humility; beauty it possesses and none can surpass it; yet it hides itself from the gaze of the passer-by, as if it were conscious of possessing nothing attractive. Thus all convey to us caution, reproof or example. All answer some wise purpose. Each fulfils its work, and then renders up its brief existence.—*Lady's Book.*

ART. XII.—*List of New and Rare Plants.* Noticed by the Editor of the Floricultural Cabinet in England.

1. *Begonia Platinifolia.* (*Plane leaved.*) Begoniaceæ. Monæcia Polyandria. This very large and handsome species was received in 1834 into the Edinburgh botanic garden from Berlin. It is a hothouse plant, growing to six feet high. The leaves are about ten inches across. The flowers are produced in cymes, each blos-

som being two inches or more across, nearly white. *Beonia*, in compliment to M. Begon.

2. *Bolbophyllum Cocoinum.* (*The Cocoa nut Bolbophyllum.*) Orchideæ. Gynandria Monandria. A native of Sierra Leone, and introduced into the country by Messrs Loddiges, with whom it has bloomed, and the cocoa-nut scent is so powerful as strongly to perfume a whole house. The plant has also bloomed at J. Bateman's, Esq. Knypersly, Staffordshire. The blossoms are of a pale flesh color.

3. *Clarkia Rhomboidea.* (*Entire petalled.*) Onagracea. Octandria, Monogynia. Synonym. C. Gauroides. Seeds of this plant were sent from North West America by Mr Douglas, and sown in the London Horticultural Society's Garden where the plant has bloomed. It is an annual, growing about two feet high. The flowers are an inch across, purple, and white near the bottom of each petal, spotted with purple. It much more resembles Clarkia elegans, than C. pulchella. Mr Douglas has left some remarks on another species in California, closely allied to C. rhomboidea, viz. C. unguiculata.

4. *Clematus Florida;* var. *Siebaldi.* (*Siebald's Virgin's Bower.*) Ranunculaceæ. Polyandria Polygynia. This handsome flowering plant is a native of Japan, from whence it was introduced into this country by Dr Siebald. It has been considered a distinct species, from that highly ornamental species, long known in the gardens of this country, viz. Clematis florida; but on a careful comparison, it is found to be a variety of it. The present kind deserves a place in every flower garden, or against a trellis, verandah, or wall. It is a free-growing sort, producing a profusion of blossoms, of considerable beauty. The petals are of a pale cream color, suffused with a rich purple, having the appearance of a dark eyed centre; if the plant be grown on a dry subsoil, and in equal parts of peat and loam, it will flourish freely. It is easily propagated by layers.

5. *Cymbidium Ensifolium;* var. *Estriatum.* (*Sword-leaved streakless var.*) Orchidaceæ. Gynandria Monandria Synonymis, Epidendrum Ensifolium, Limiodorum Ensatum. Cymbidium Striatum. The present plant grows freely in the greenhouse, where it produces a profusion of pretty, fragrant, blossoms. The petals are whitish, sepals greenish white, the labellum is spotted and marked with crimson.

6. *Delphinium Vimineum.* (*Slender upright Larkspur.*) Ranunculaceæ. Polyandria Trigynia. The late Mr Drummond sent seeds of this plant from the Texas to the Glasgow Botanic Garden, where it has bloomed. It is a hardy perennial species growing about a yard high. The stems are slightly branching. The flowers are produced in rich racemes, and are of a bright azure blue color. It deserves a place in every flower garden, being highly ornamental from July to September.

7. *Delphinium Tenuissimum.* (*Short slender Larkspur.*) A hardy annual plant, introduced into this country in 1836, seeds of it were gathered by Dr Sebthorp, near Athens. It has bloomed in the Liverpool Botanic Garden, producing a profusion of flowers and seeds. The plant grows to about a foot high, producing its flowers in loose panicles, they are of a violet blue color.

8. *Dipodium Punctatum.* (*Dotted flowered.*) Orchidaceæ. Gynandria Monandria, Synonym, Dendrobium Punctatum. This terrestrial species of Orchideæ has been found in Van Dieman's Land, as well as in New Holland, but more plentiful in the latter country. Mr Jackson found it there flowering in December. It has bloomed in the collection of Messrs Loddiges's. The stem is of a dark purple color, rising from eighteen inches to two feet high. The flowers are numerously produced on a cylindrical raceme. Each blossom is of a dark purple, spotted with blood color, and are about an inch across, producing a very pretty effect. *Dipodium*, from *dis* two; and *pons podos*, a foot; alluding to the two stalks of the pollen masses.

9. *Epidendrum Coriaceum.* (*Leathery leaved.*) Orchidaceæ. Gynandria Monaydria. Charles Parker, Esq. sent this species from Demerara to the Liverpool Botanic Garden, where it has bloomed. It had been considered by Mr Shepherd to be a variety of E. variegatum but it appears now to be a distinct species; the leaves are more coriaceous, more lanceolate, shorter and less striated and acute; the spotting of the flowers are also very different. The flowers are produced in a spike, and the raceme contains from eight to ten. Each blossom is about an inch across, whitish, beautifully spotted with red. *Epidendrum*, from *epi* upon, and *dendron*, a tree; referring to its native situation.

10. *Habranthust Andersonii* var.; *Texamus.* Amaryllideæ. Hexandria Monogynia. Grows in a native state in Monte Video, and

in Buenos Ayres. The scape is one flower. The flower is an inch and a half across, of a golden yellow color, with the outside of the petals, striped with redish brown. *Habranthus*, from *ubras* delicate, and *anthos*, a flower.

11. *Hosackia Stolonifera.* (*Creeping rooted.*) Leguminosæ. Diadelphia Decandria. The late Mr Douglas sent seeds of this plant from California. It is a hardy herbaceous plant, forming a bush of a yard high, and has much the appearance of a shrub during summer. The flowers are produced in nodding umbels. Each blossom is small greenish, with chocolate colored middles. The plant blooms in June and growing rapidly and bushy, is found to be valuable, has an under shrub, filling up vacancies between shrubs. It increases rapidly by its creeping roots.

Art. XIII.—*Miscellaneous Matters.*

An extraordinary plant was last January discovered in the river Berbice, in South America, by R. M. Schomburghk. It is a new genus, allied to the water lily, and its leaves and flowers are of a prodigious size. It has been named Victoria Regina, in honor of the Queen of England. In his progress up the river he arrived to where the water expanded and formed a currentless basin. An object at a distance attracted his attention, and directing his men to row towards it, he beheld a plant which he describes in the following manner:

"A vegetable wonder? All calamities were forgotten; I felt as a botanist, and felt myself rewarded; a gigantic leaf, from five to six feet in diameter, salvershaped, and with a broad rim, of a light green above, and a vivid crimson below, resting upon the water.—Quite in character with the wonderful leaf was the luxuriant flower, consisting of many hundred petals, passing in alternate tints from pure white to rose and pink. The smooth water was covered with them, and I rowed from one to another, and observed always something new to admire. The leaf on its surface, is of a bright green; in form orbiculate — with this exception — opposite its axis where it is slightly bent in, its diameter measured from five to six feet. Around the margin extended a rim about three to five inches high;

on the inside light green, like the surface of the leaf; on the outside like the leaf's lower part, of a bright crimson. The stem is an inch thick near the calyx, and is studded with sharp elastic prickles about three quarters of an inch in length. The calyx, is four leaved, each upwards of seven inches in length, and three in breadth, at the base; they are thick, white inside, reddish brown and prickly outside. The diameter of the calyx is twelve to thirteen inches; on it rests the magnificent flower, which, when fully developed, covers completely the calyx with its hundred petals. When it first opens, it is white with pink in the middle, which spreads over the whole flower the more it advances in age, and it is generally found the next day of pink color. As if to enhance its beauty it is sweet-scented. Like others of its tribe, possesses a fleshy disc, and petals and stamens, pass gradually into each other, and many petaloid leaves may be observed which have vestiges of an anther. We met them afterwards frequently; and the higher we advanced the more gigantic they became. We measured a leaf which was six feet five inches in diameter, its rim five and a half inches high and the flower across fifteen inches. The flower is much injured by a beetle, Thrincia species, which destroys completely the inner part. We have counted from twenty to thirty in one flower.

"Bring Fruits — Bring Flowers."—Upon the visit of Queen Victoria to Brighton, there was a grand floral display; numerous arches of dahlias and other flowers were formed over the way traversed by the young Queen. About 120,000 persons witnessed her entrance at the imperial palace. The Duke of Norfolk sent ten wagon loads of exotic and other flowers. Such an offering was worthy to be woven into a wreath, of size gigantic, for Britain's Sovereign — an offering the most fitting that a loyal heart could have devised from gallant cavalier to royal mistress. It is said that John Bull has lost his surliness since the accession of Victoria, and that he is now all "nods, and becks, and wreathed smiles." Be it so or not, our friends over the water have shown their good taste by the way in which respect for their Queen has been demonstrated.

The love of flowers, and of their cultivation, should be encouraged. It is humanizing. They are the poetry of creation — and the heart must be insensible to the sweetest influences of Nature, which does not admire their beauty and variety. Flowers and shade trees are favorable indications of good qualities in the persons of

those in whose houses and gardens, and before whose doors, and on whose farms they are found. The study of Flowers tends to refine and elevate; and we never look upon the simplest of them all, without thinking of the last verse of Good's description of the Daisy, where he introduces thus beautifully a lesson, poetic and moral:

"And flung it unrestrained and free,
O'er hill, and dale, and desert sod,
That man where'er he walked might see
In every step the stamp of God!"

— *Wilkesbarre Advocate.*

GRAPES.— While recurring to the articles of the late exhibition, we may mention a few bunches of grapes left by Dr. Sharpless, of Arch Street. They were of a very delicate class, but we mention them less with regard to their excellence, than to say that they are an additional evidence of the capabilities of every house lot to produce grapes. Dr Sharpless placed the cutting of the vine, from which these grapes were raised, in a little corner, a few feet square, presenting neither sun nor space, for grape vines — but he conducted the vine to the top of his building, three stories high, over which he erected an arbor, upon which the vine having worked to that height was allowed to expand. On the second year after setting out the slip, one or two bunches of grapes were taken from the vine, which had in that time attained such an eminence; and this, the third year, the vine produced upwards of 70 large bunches of fruit. What encouragement is here for any one, and every one to set out a vine. A man at the corner of Pine and Sixth streets, long since conducted a vine to the roof of his house and was thus enabled not only to sit, but to sleep under his vine and to make some excellent wine from its fruit. And anybody may do the same thing, and have as much fruit of the kind as is desired, if they will set out the vine and let it grow, no matter whether the person owns the house he lives in or not. Let every one plant a vine, and the people will move from vine to vine, just as they now go from hydrant to hydrant.—*Philadelphia Gazette.*

QUINCY MARKET.

[Reported for the Horticultural Register.]

APPLES, Winter,	barrel,	2 00 to 2 50	
Dried,	lb.	5 1-2	6½
BEETS,	bushel		67
BEANS, White	do.	2 00	2 25
BROCOLI,	head	12	25
CABBAGES,	dozen	50	75
CAULIFLOWERS,	head	12	25
CARROTS,	bushel		67
CELERY,	root	6	12
CRANBERRIES,	bushel,	2 00	2 25
GRAPES,	pound	75	1 00
HORSE RADISH,	pound		10
LEMONS,	box	3 00	3 50
NUTS, Almonds, (Soft shelled)	pound	7	8
(Hard)	do.	4	5
Filberts	do.	3 3-4	4
English Walnuts	do.	5	7
Castana,	do.	3	4
Pea Nuts,	bushel	1 25	1 50
Shagbarks,	do.	2 00	2 25
Chestnuts,	do.	5 00	6 00
ORANGES, (Havana,)	hund	3 00	3 50
ONIONS,	bushel	1 00	1 25
POTATOES,	do.	50	
PEARS,	peck,	67	
PICKLES,	gallon	25	
SWEET POTATOES,	bushel	1 50	
SQUASHES, Crookneck,	pound	2	3
TURNIPS,	bushel		50

Boston, Jan. 2, 1838.

THE

HORTICULTURAL REGISTER,

AND

GARDENER'S MAGAZINE.

FEBRUARY 1, 1838.

ART. I.— *Some Hints on the Advantage of Winter Pruning of Fruit and Forest Trees.* By Mr THOMAS WILLOT, Boston.

MR J. BRECK — *Dear Sir* — Having proved the advantage of the remarks I about to make on the winter pruning of fruit and forest trees, I submit them for insertion in your Magazine.

It is well known that little can be done in the Horticultural department, as relates to out doors culture in the winter season in the Northern States ; and it is also the opinion of many persons that *hardy Fruit and Forest Trees* can be pruned with safety only in the spring; for my part, I see no reason why all kinds of hardy fruit and forest trees cannot be pruned in the middle of winter, every fine day ; nor, do I ever recollect of seeing any trees injured by winter pruning, when judiciously done. The only advantage that I am acquainted with in spring pruning, is, that the wounds heal sooner than in the winter ; but, on the other hand, it is necessary to apply a composition on the amputated part, to keep the sun from cracking, and the rain from decaying it; there may be, also, another *item* in favor of late spring pruning, namely ; the small dead branches are more easily seen than in the winter.

I will now endeavor to point out the advantage of winter pruning. In the first case it places you in a forwardness for the spring work,

ploughing, digging, and preparing the ground for spring cropping, which may be considered an important point, in a country like this, where the seasons come on with such rapid progress in vegetation.

The destroying of insects is also another important point in the the culture and well being of fruit trees, which is effected by clearing and washing the outer bark, a process that I have reason to believe, can be done more effectually in the winter than in the spring. The bark of trees is the best winter quarters for insects in a dormant state, and to breed in, which, being exposed to the winter's severity, they eventually perish. I would recommend that great care be taken in scraping off the loose outer bark of fruit trees, so that the inner bark is not injured by the operation, as I am fully convinced, that many trees are often more injured in this respect, than by winter pruning.

In the operation, care must be taken to remove all the loose outer bark, by scraping it from the tree so as not to injure the inner bark. Any large amputations or wounds made, should be pared smooth with a sharp knife, to which the following wash may be applied, viz: equal parts of clay and cow-dung, well mixed and composed together, and a moderate portion of potash added therewith. This may be applied also to the *cracks* and *wounds*, and should be made of such a consistence as to be applied with a *hair brush*; but, if the trees are very badly *infected with insects*, I would recommend the same composition, made into a thinner consistence, mixed with a quantity of the wash generally used for destroying the mildew on the grape vine, made of lime and sulphur, in the following proportions, viz: to eight gallons of the before named composition add one pint of the wash, which, apply to the bark of the trees in a thin, regular manner with a *brush*, after the outer bark has been cleansed as before directed.

In closing the above article, I cannot refrain from impressing upon the minds of those persons who have fruit and more especially *forest trees* to prune, the advantage to be obtained by winter pruning. I hope they will be induced to try the experiment, and trust the results which follow will be a satisfactory proof of the utility of the process.

Art. II.—*On Pruning Timber Trees, &c.* Extracted from Professor Lowe's Elements, &c.

[The subject of pruning timber trees has not received much attention in this country generally, as the great object has been in most places, to cut down and destroy, rather than preserve, the beautiful woods and groves which were the pride and ornament of our land. The barren aspect of many parts of our country for the want of shade trees has been calling the attention of horticulturists for a number of years to supply the deficiency, by transplanting from the woods and nurseries, many of our fine native trees, to ornament their grounds, and the roadsides; we believe the time is not far distant when large plantations will be made not merely for ornament, but for timber which will soon be in great demand. The following extracts, we conceive, will be acceptable to those who are engaged in a work so honorable to themselves and beneficial to the community, as that of cultivating timber and shade trees.—Ed.]

The natural tendency of many trees is to rise with a conical stem shooting forth lateral branches from the base upwards. Some species of trees as most of the resinous and some of the willow and poplar kind do not tend to deviate from this form, the main trunk rising erect, surrounded from the summit to the base by smaller horizontal branches. But other trees, and these may be said to comprehend the greater part of the hard wood, do not rise with the same regularity. Instead of one leading upright trunk, they send out many large boughs, which rival in size the principal trunk: such trees become forked near the base, and the principal trunk below is short, while the top is largely branched.

Now this is a form of a tree which, however conducive to beauty, is not so to utility. The main object for cultivating wood is for the timber, and the greater part of the useful timber of trees is contained in the trunk before it begins to shoot out into boughs. In the artificial cultivation of wood, therefore, it is important to produce as great a length of trunk, in proportion to the branched top, as a due attention to the natural habits of the tree will allow.

Further, it is important for the obtaining of useful timber for the purposes of the carpenter, that the trunk shall be what is termed clean for as great a space upwards as possible. To understand the meaning of this term, when a branch shoots out from the side of a trunk of a tree, a part of the vegetable circulation is carried on through

that branch; and hence there is at this place an interruption of the continuity of the circulation and this alters its course. The fibres of the branch lie in a different direction from those of the main stem, and this, when carried to a certain extent, is injurious to the texture of the wood. These twisted fibres frequently constitute as it were a distinct mass of wood within the body of the trunk. They often form what are called knots, which greatly take from the usefulness of the timber for the purposes of carpentry.

For these reasons, it is important that as great a part of the lower trunk as possible, be freed from the lateral shoots.

Nature in part performs this process. As the tree rises in height, the lower branches decay and fall off, so that there are few trees in which, even if left to themselves, there will not be a certain portion of the lower stems, cleared of lateral branches. When trees are close together, this natural falling off of the lower branches takes place more quickly, and to a greater extent, than when they are distant from each other.

In natural forests the trees rise with very tall upright stems, and are gradually divested of all their branches below to a vast height. It is from natural forests accordingly that our finest, tallest, and most valuable timber is derived.

But in the artificial culture of wood we cannot imitate the natural process, and allow the lateral branches to fall of by themselves. In the culture of wood we must admit air to the trees, by keeping them at a distance from each other: and under these circumstances, the tree tends greatly to shoot out into branches, and thus to produce a smaller growth of upright stems, as well to have a smaller extent cleared of branches towards the base.

In the cultivation of wood, then, we must generally resort to artificial means to form the tree to what we wish it to possess. We must then endeavor to promote the upright in place of the lateral extension, and then to have a sufficient portion cleared of lateral branches.

Further, the later branches should be taken off at as early a stage in the growth of the tree as is consistent with its health; for it is to be observed, that when a branch shoots from a tree, the twisting of the fibres begins at the point where the branch had originated, and not, as from a cursory inspection might be supposed, from the surface of the stem.

Thus, in a following section of a portion of the stem, a lateral branch having first appeared on the surface, continues to increase in thickness as the main stem increases, and in the same manner, namely, by the adding each year of a layer of wood all round. It does not therefore commence at the surface of the tree, but in the interior and each year increases in diameter. The sooner, therefore, that this branch is removed, the less will be the twisting of the main stem at this part.

As in the practice of pruning there are two distinct purposes to be aimed at; first, giving the vertical tendency to the tree; and, second, obtaining as great a portion as possible of clean stem; so there are two periods in the growth of the tree at which these objects are to be attended to. The first in the order of time, is giving the vertical tendency to the tree, and the second, the denuding it of its lower branches.

Until the tree has attained the height of fifteen or sixteen feet, the only object that need to be attended to is to give it the upright tendency in question, and to prevent its becoming forked.

The pruning for this purpose consists in merely shortening such branches as may be rivalling the leading shoot, or stretching out laterally with a growth disproportioned to that of the others. Frequently the mere nipping of the terminal bud will be completely effected by shortening the shoot, making it about half the length of the shoot above; this is the sole purpose of pruning during the first period of the growth of the tree; and it is to be observed, that if a tree be of itself tending to grow upright and without forking, no pruning, even of this simple kind, is required. For of all pruning it is observed, that it is a violence done to the plant, and is to be avoided as much as possible. By cutting off branches and leaves, we cut off organs of nutrition. We do not prune that we may increase the quantity of wood, for the operation has quite a different tendency and effect; but we prune that we may give the tree that form which is calculated to produce the greatest quantity of timber in the proper place.

The other branch of pruning, and next in the order of time, consists in denuding the lower part of the trunk of branches, so that there may be obtained a sufficient extent of clean wood. Although, for the reasons given, it is important that the taking off these brances be at as early a period as possible, yet this must be done always un-

der the conditions necessary to preserve the health of the tree. The tree should in the first place, have attained sufficient strength and age to bear the being deprived of its branches; and in the next place, the process should be carried on so slowly as not to affect the healthy growth of the plant, and so gradually, that it may have vigor to cicatrize, or cover with bark, the wounds that have been made upon its surface. The period when we may safely commence this process of denudation, is when the tree has attained the height of fifteen or sixteen feet.

Now, every tree adds to the length of its leading shoots and branches from buds which grow on the end of the shoots. Every year a new shoot is made from the end of the buds, of a length proportioned to the vigor of growth of the plant. The shoots thus formed in one year, produce each a bud, which, in like manner produce shoots in the following year; and thus while the tree is growing, there is a continued increase of the length of its leading shoots and branches. Further, when the annual shoot of any branch is produced, there is usually sent forth at the place where it originates one or more lateral shoots, so that there is a succession of branches, or tier of branches from the base to the summit. Were these lateral branches not to fall off, we could, by means of them, ascertain the age of the tree, and in the case of many of the Coniferæ, we can frequently ascertain the number of years which they have lived, or that each individual branch has taken to grow, from the number of these annual shoots alone. A knowledge of this mode of growth will conduct us to a simple rule in practice for removing, without violence, the lower branches of the trunk.

When we commence this process of pruning off the branches of the stem, let us cut off the lowermost branch or tier of branches, that is, the branch or branches of one year's growth, and no more: in the second year let us cut off a second tier, in the third year a third tier, and so on. In this manner, while the tree in each year makes one shoot vertically, the lateral shoot of another year is cut off below. Thus, a tree having made fifteen shoots, and having risen, we will suppose, to the height of fifteen feet, we commence the process of pruning by cutting off the lowermost set or tier of branches. The tree then makes a shoot at the top, so that while we have cut off the lateral shoots of one year, another year's vertical shoot will be made. The next year we prune away the branch or

tier of branches, and again the tree makes a shoot at the top. In the third year we cut off as before, and again the tree makes a shoot upwards; and so we take off each year the lateral shoots of one year, and never any more.

By this method we shall gradually denude the stem of its lateral branches from below upwards, while it is increasing in vertical growth. The extent of clear trunk will thus gradually become larger in proportion to the uncleared portion or top. Thus, suppose we begin to prune when the tree has made fifteen years' shoots, then when it has made thirty years' shoots, we shall have cleared off fifteen; that is, half the height of the tree.

Now, when we have cleared half the height of the tree, or a very little more, we should pause in our further operations, and mark its state of growth. If it continue to grow vigorously, we may resume our operation of close pruning, but at longer intervals than before, so as never in any case to have cleared away more than one half, or at the utmost three-fifths, of the height of the tree, and never taking off more than one year's lateral growth of branches in a season.

Every tree, it is observed, must possess a sufficient top; that is, it must extend horizontally as well as vertically, so as to bear branches and leaves. The leaves are organs of nutrition of the plant, essential to the healthy exercise of the vegetable functions, and we must be careful to deprive it of no more of these organs than consists with our purpose of pruning. Now, by proceeding slowly in this gradual manner, never taking off more in one year, than the growth of one year's lateral branches, we shall not usually interfere with the healthy growth of the tree, but shall always leave it a sufficient power of expansion at top, as to afford it the means of nutrition and growth. Further, by never cutting off more at a time than the growth of one year, the tree will generally have vigor to cicatrize the wounds that have been made upon its trunk; whereas, were we to lop off many branches at a time, according to the practice too prevalent, the tree might not have vigor to cover them with fresh growth of bark, and thus the wounds might remain, to the lasting injury and frequent destruction of the tree.

In pruning in this manner the branches are to be cut off quite close to the stem, so that the bark may quickly cover the wound; and although trees may be pruned in summer, the fittest period for

pruning, as of all operations upon the living plant, when vegetation is inert: that is, from the fall of the leaf, to the period of the ascent of the sap in spring.

Thus, then, the operation of pruning may be said to be begun in the nursery, but at that time with an extreme degree of temperance, all the object of pruning at that early period being to prevent the plant becoming forked. When the trees are transplanted to their ultimate situation, we may examine them in the third, or at latest, the fourth year afterwards, and then, if more than one leading shoot is formed on any tree, we are to select the best, and shorten the others to about half the length of that which had been selected. And in like manner, when any branch or set of branches is seen to be extending laterally, with a growth disproportioned to that of the others, then, by merely shortening them, the tendency to the lateral extension will be sufficiently checked to allow the other branches to extend in an equal degree. And should we find that all the branches of a tree are tending to extend too much laterally, by merely shortening them in a slight degree, we shall give the ascendency to one leading shoot, and so promote the upward tendency: and this is all the pruning required until the tree has attained, as has been said, the height of fifteen or sixteen feet, when the process of pruning the lower branches is to be begun and carried on by the slow process described. But even after we have begun the process of close pruning, we may still observe that the tree is ascending vertically, and, if required, give this tendency from time to time by shortening of any of the lateral branches.

It is not essential to the success of this method of pruning, that it be carried on every year. It will be sufficient to approach as near to the perfect practice as circumstances will allow, observing merely the general rule that not more than the growth of one year shall be taken off at a time, and that the process shall not be carried further than to the clearing off three-fifths of the height of the tree.

The method of pruning by the shortening of the lateral branches, was brought into notice in England by the writings of Mr Billington, who had charge of a portion of the royal forests: and it was further developed and explained, with the addition of the gradual denudation of the lower branches, by Mr Cree, in Scotland. To these most deserving individuals is due the merit of having introduced, and to the latter that of having perfected, a system of pruning greatly superior to that which had been before in use.

Pruning, as it is commonly practised, can scarcely be said to be founded on any principle. Branches are lopped off without limit or caution, and thus the growth of the tree is injured, and wounds formed upon its surface, which are never afterwards cicatrized. Often in the case of the young trees, we see the entire branches of successive years' growth loped off in a season, and nothing left but a bush at the top. By this system of mutilation, millions of trees are sacrificed. A great proportion indeed of the whole cultivated wood of the country is annually destroyed, and it were better that the pruning knife were never used at all than thus misapplied. The practice so common has probably been derived from that of the garden; but it is to be observed, that in the garden the object of pruning is to repress the growth of the wood and produce that of fruit; and the principle, therefore, is in no degree applicable to the pruning required in the forest.

The principal instruments to be employed in pruning are a sharp knife, chisels with handles for reaching the higher branches, and sometimes a small saw for the larger branches. The hatchet is on no occasion to be used in pruning. The Indian saw ought to be used, which is made to act by being pulled towards the operator, in place of being pushed away from him like the common saw of Europe. By being fixed to a long handle, this instrument is adapted to the cutting off the higher branches.

When the proper direction has been given to the growth of the tree, and the lower branches have been pruned to the height to which it has been thought expedient to carry the operation, art has done all that it can do to render the tree useful. The natural growth of the tree must effect the rest. The trunk will increase in diameter by the addition of concentric layers of wood, yearly formed between the bark and the stem. The longer a tree stands while in a growing state, the thicker will its trunk become, and the more valuable. It makes wood rapidly, to use a familiar expression, when the trunk has become of a good size: and it is an error, therefore, to fell wood which is intended for timber too soon.

In the pruning of forest trees, one of the most frequent errors committed is to delay the process till too late. By this delay the form of the tree is rendered such that it cannot be restored; and the lopping off of large branches in the manner often practised, in order to give the tree a better shape, is for the most part attended with the

evil of disfiguring it more, and enfeebling its growth. We constantly see those mistaken attempts to repair past neglect, by the lopping off of large limbs, the places of which the tree now wants vigor to heal. Vast number of trees are destroyed by this system of mutilation, when all further object in pruning is at an end. Sometimes a large branch may be lopped off a tree top heavy, or when a branch is likely to be split, or for some other good reason. But it is an error which must end in disappointment, to begin this system of lopping a full grown tree, with the design of compelling it to resume its process of increase when it has naturally ceased.

When a tree has naturally been neglected, but is not yet so far advanced, but that we may hope to restore it, we have merely to apply the principle of pruning explained to the case of the particular tree. We have to shorten the lateral branches which are forming forks, so as gradually to produce the upright tendency of the leading stem required. The rule is to proceed with the greatest temperance, taking care never to do too much in one season, lest, by depriving the tree of its branches, we enfeeble its vigor and impede its growth.

Art. III.— *On Live Fences.*

Live Fences are annually becoming more and more a matter of interest to the American public, particularly to the farmers of the Prairie West, where there is already a scarcity of timber land. Our fencing timber is rapidly diminishing, and but a small portion of our country is furnished with stone for fencing purposes. Live fences, therefore, must be sooner or later resorted to, as a matter of necessity, and they may be resorted to, we are persuaded, as matter of ultimate economy, in districts where fencing timber or old stones are scarce or dear. Caleb Kirk, of Delaware, a writer of some excellent articles upon hedges, states in one of his essays, that an Englishman, located in his neighborhood, was in the habit of contracting to plant and take care of thorn hedge till it became an efficient barrier to cattle, receiving his pay as the work progressed, at one dollar the rod. In a period of twenty years, therefore, the live fence would cost much less than the dead fence, with the ad-

vantage to the former superadded, that at the end of the twenty years, the live fence would be complete, and in order, while the dead fence would be required to be rebuilt with a new outlay. We are satisfied from our own experience and observation, that we have abundant materials, in the indigenous growth of our country, for live fences, and that we can, after we have profited more from experience,— and the sooner we acquire this the better,— advantageously employ them in growing live fences. The greatest bar to our progress in the business is, *want of patience*, and a just perception of our ultimate interest. If we could grow live fences as readily as we can construct dead ones, there would be no hesitation in resorting to them, however expensive. But the idea of devoting six or seven years to bringing them to perfection, *perhaps longer than our natural lease of life*, deters many from planting hedges, as it does fruit or ornamental trees. The object of the parent is almost invariably, not to provide the means of promoting his own comfort, but to lay up an inheritance for his children, and this, he should consider, is as effectually done by enhancing the value of the acres, which are to constitute the patrimony, by good and permanent live fences, orchards of good fruit, and rural embellishments, as by bank bills or wild lands in the far west. Live fences not only serve to enclose lands, but afford a highly beneficial shelter to farm crops, and, if kept in order, add greatly to the beauty of the landscape.

In the few remarks we are about to offer on this subject, we shall direct the readers attention,

1. To the material to be employed,
2. To the procuring the plants,
3. To the preparation of the ground and planting; and,
4. To the management of the hedge.

The Material to be Employed. The best material, we believe, is the thorn (*Cratægus*) most indigenous in the district where it is to be used — because such species must be best adapted to the climate and soil. The American thorn is generally of stouter growth than the European, which in the old continent is used for hedges, at least with us, and is equally well armed with thorns. Of the native thorn, nine species are enumerated by botanists, viz:

1. *Cratægus coccinea*, berries large, red and pleasant tasted, and grows from Carolina to Canada. Two varieties.— *Eaton.*

3. *C. pyrifolia*, (pear leaved,) grows from Pennsylvania to Carolina, west to Michigan.— *Beck.*

3. *C. populifolia*, (poplar leafed,) grows in Pennsylvania, &c. berries small and red.—*Eaton.*

4. *C. elliptica* — berries oval, five seeded, small, red — grows from Canada to Carolina.— *Beck.*

5. *C. Glandulosa*, (full of kernels,) fruit scarlet, middle sized, oval, five seeded. Canada and Allegany mountains.— *Ib.*

6. *C. flacea*, (yellow berried,) grows in Vermont.—*Eaton.*

7. *C. punctata*, two varieties, one having red and the other yellow berries. Tree dwarfish — grows from Carolina to Georgia.— *Beck.*

8. *C. crus-galli*, fruit small, red, mostly one seeded. Long spines — grows from Canada to Carolina — several varieties.— *Beck.* Var. *splendens, pyracanthifolia*, and *salisifolia.*— *Eaton.*

9. *C. parviflora*, (small-flowered,) fruit large, yellow, with five bony one seeded nuts — grows four feet high, from Canada to Carolina, in sandy woods.

The *C. Oxyacantha*, or quickest thorn of Europe, has been introduced, and used to some extent among us; but we do not think it is so well adapted to our climate, particularly north lat. fortytwo deg., as our native species. After a trial of seven years, we have been obliged to give it up, and have substituted native plants in its stead.

There are besides the foregoing, several other plants, which have been recommended and partially employed in live fences. Among these we may name the following:

1. *Red Cedar*, recommended by the late John Taylor, of Virginia, and others. We have seen this plant in hedge in Maryland, but have never seen it make a good hedge.

2. The *Wild Crab*, though we have not seen it tried, seems well adapted for live fence — being hardy and well armed with spine.

The *Honey* or *Three Thorned Locust*, (Gleditschia triacanthos,) though belonging to the class of large trees, yet by close planting and judicious clipping, may be kept to a dwarf size. The male plant is armed with very long and strong spines, the female plant has fewer and smaller spines, and bears an abundance of seeds. The plant is said to be indigenous to the country south and west of New Jersey, and is found to be hardy in lat. fortytwo deg. N. We are experimenting with it as a material for hedges, and our confidence in it is becoming stronger as we progress. It is of rapid growth,

and will require clipping probably twice in a season. It will ultimataly make a very strong fence, if properly trained in time.

4. The *Buck Thorn* — (Rhamnus catharticus.) This may be termed a small tree, or large shrub, producing an abundance of black berries, often used medicinally as a cathartic — not armed with spines, but growing very close and compact. We long doubted whether this would make an efficient fence, till we were undeceived by a visit to E. H. Derby, Esq., of Salem, Mass., where we saw one of the most beautiful and efficient hedges that ever met our eye, formed of the Buck thorn. We purchased a thousand plants, and now have them in training as a hedge. We apprehend it will require a longer time to make them a strong fence, than from the other plants we have enumerated.

5. *Privet* or *Prim*, (Lagustrum vulgare,) an exotic shrub, growing six to eight feet high, without spines, for the last ten years perfectly hardy in the neighborhood of Albany — branches very dense, and retaining their green foliage often to midwinter; makes a beautiful *ornamental* hedge about court yards and gardens, when symmetrically clipped, and a very *useful* one, in time, if we are to credit the reports of our grandfathers: for in olden time, prim hedges were extensively cultivated among us, particularly on Long Island, in Connecticut, &c. In two towns of Suffolk, according to Mr L'Hommedieu, there were no less than four hundred miles of prim and black thorn hedges some sixty years ago. The cause of their sudden and general decay, at that time, has never been satisfactorily explained; yet we are certain of the fact, that for the last fifteen years the prim in this neighborhood has proved perfectly hardy, and has not been affected by any disease or insect enemy. It possesses one advantage over all the other plants we have named: it grows freely from cuttings, which may be readily transported hundreds of miles, in winter, with safety.

6. The common *Beach* is extensively employed in the Netherlands for hedges. They are beautiful and strong, the plants being trained alternately right and left, diagonally, resembling lattice work, though the labor in training is considerable. Beach mast may be had in any quantity in the north and may be readily transported.

7. The *Osage Orange*, (Maclura aurantiaca,) is strongly recommended as a suitable plant for hedges in the southern and middle

states. Although a native of the south-western states, we are disappointed in not finding it noticed by either Eaton or Beck. It forms a tree of the second class, is armed with strong spines, and has a tolerable thrifty growth; it will not bear our northern winters, but we think may be cultivated south of the Highlands, or lat. forty.

8. The *Cherokee Rose*, we are told, makes a beautiful hedge in the southern states, but we do not learn that it will succeed north of Maryland.

9. The last plant we shall name is the *Japan Quince*, (Cydonia formerly Pyrus Japonica.) It is a shrub growing six to eight feet high, abundantly armed with spines, handsome foliage and splendid scarlet flowers — a native, as its name imports, of Japan. The wood is hard and the branches close, and after a few years a hedge of it would become impervious to cattle and hogs. It is cultivated in shrubberries as an ornamental plant, on account of its bright scarlet flowers. Another species has white flowers. This plant may be rapidly multiplied, by cuttings of the root.

The *Elm*, although ranking among the first class of forest trees, seems to us adapted to this purpose, particularly the species commonly known by the name of slippery elm, (Ulmus fulva, of Michigan,) which is smaller in its growth than the common American kind. Although this plant is not armed with spines, the common requisite of a hedge plant, its branches and top are so flexible that they may be readily bent to a horizontal, or recumbent position, and interwoven with each other, without materially obstructing their growth; and when once interwoven in this way, and the fence having attained a proper height, they present a barrier to the strongest animals. Some plants accidentally mixed with our honey locusts, have given us a high opinion of their fitness for hedges.

Another plant which is used considerably in Europe, in wet grounds, and which may be found useful in like grounds here, is the *Alder*, (alnus;) but this is calculated to succeed best here, as it does there, planted on a bank and ditch. On grounds natural to its growth, the *White Birch*, (Betula alba,) cannot fail also of succeeding well. We have seen tolerable fences made of this plant, by merely lopping them in a line; and if they are planted and trained, they must make a fence.

2. To obtain Hedge Plants. The most certain mode is to plant the seeds, and to raise the plants in nursery beds. Plants of

the indigenous thorn, and of the red cedar, may often be obtained in large quantities from the pastures and woods. We have a good hedge of the former, the plants of which were obtained in this way. When such are used, they are cut down to within a few inches of the ground, when they are planted. The Prim and Cherokee rose are readily propagated by cuttings. They may be planted on the site of the intended fence, if the ground is properly prepared, and afterwards kept clean. The alder and white birch are best taken in stools, or single plants, from the grounds where they grow, and where they are to serve as a fence. The Japan quince, as we before observed, may be propagated by cuttings of the root. But as regards the wild crab, the honey locust, the beech, Osage orange, elm, buckthorn, and generally the common thorn, the principal reliance is to be had upon plants raised from seeds in the nursery. Plants of the European hawthorn are annually imported in quantities. They are obtained in Great Britain at two shillings or two shillings and sixpence per thousand, one year old. The seeds of the thorn, of the wild crab, of the red cedar, of the buckthorn, and of the beach, may be gathered in the autumn, and do best if immediately planted. They will not generally grow till the second spring, except the crab, and perhaps the beach. These seeds may all be preserved and planted in the spring, and in that case they should be so kept that they do not heat. The seeds of the elm should be gathered as soon as they fall, which they do here the last of May, and be immediately sown. They grow quick, and attain six to twelve inches height the first season.

The seed beds should consist of rich earth, well dug, pulverized and raked. They should be from three to four feet broad, to permit their being easily wed. The seed may be sown either broad cast upon them, or in drills from twelve to eighteen inches apart, pretty thick and covered with an inch or more of good mould. The seed beds should be kept free from weeds, and after a season's growth, the plants should be thinned, and either the stronger ones placed in nursery rows, three feet apart, and with intervals of one foot in the rows — or the smaller plants should be drawn, so as to leave intervals of three or four inches between those remaining, and pricked out in separate beds. If plants are left more than one season in the seed bed, where they stand thick, they grow slender and feeble, their roots are contracted, and they are not likely to do well

when put in hedge. Plants are more profitably put in hedge when they have attained the size of the little finger, which is generally at the end of the second or third season's growth. When transferred from the seed beds, the tap roots should be shortened to four or six inches, in order to induce the plants to throw out side roots, or to multiply them close to the stem. The whole of the plants ought to be removed from the seed beds the second year, and their roots shortened, though they be not large enough to put into the hedge. Plants are more easily taken care of in nursery than they are in hedge, and should therefore be kept in the former till they are strong enough to shoot with vigor.

We append to these remarks, Thomas Main's mode of growing the haws of our indigenous thorns, the first season after they are gathered. Mr Main was a practical nurseryman, residing in the District of Columbia. He raised large quantities of quicks, many of which were purchased and planted in the neighborhood of Troy. The statement is entitled to full credit. We copy it from the American Farmer of 1821 : —

" The seeds," says Mr Main, " are to be extricated from the berries, either by hand rubbing, or any other means. I commonly put them in a trough, and mash them with a wooden pestle, taking care to proportion the strokes thereof so as not to break the stones, and turning over the mass repeatedly during the operation, until all the berries are broken—after which the stones are to be washed from the pomace. Put a gallon or two of the mass into a washing tub, filled with water—let it be well broken and rubbed by the hand therein—pour off the water gently—the pomace and light stones will flow over along with it, and the good seed will remain at the bottom. It will be necessary to repeat this, say ten or twelve times, until scarcely any thing remains but the clean stones. They are then to be put in a deep square box, that will hold them with ease, so that the quantity of seed may not reach within some inches of the brim. The box ought to be loosely made, or a few gimlet holes bored in the bottom, to permit the water to drain from the seeds. It is then to be placed in some secure situation out of doors, in the coldest exposure that is convenient ; and the seed in the box being covered with some moist oak leaves, or green moss, they are to remain so during the winter. Ground squirrels and mice are fond of these seed ; the box ought, therefore, to be secure from these

animals. It is not necessary to mix any mould with the seed, neither is it material how often or seldom they are frozen during the winter.

"At the approach of spring, the seed are to be inspected every two or three days, say about the middle of March, [middle of April in lat. 42°,] and as soon as they feel slimy on being handled, it indicates that the shells of the stones are about to open. The weather being favorable, the ground is then to be digged and prepared for the reception of the seed. So soon as the small point of the rootlet of *some of the seed* appears protracted, it is then just the time, weather permitting, to sow them. Every gardener knows that the beds ought to be about four feet wide, and that the alleys should be from fifteen to eighteen inches. The seed ought to be rolled in plaster of Paris at the time of sowing, and scattered about an inch apart—half an inch of fine mould is sufficient for their covering. The plants will appear in a few days, if the weather is favorable. It is scarcely necessary to add, that to produce fine plants, clean and careful weeding is indispensable. It will save a whole year's trouble and time afterwards. The process may be summed up in one short sentence: Clean the stones from the berries, and keep them damp through the winter."

We now add, from the same excellent and pioneer agricultural periodical, conducted by John S. Skinner, John Taylor's, of Caroline, Va., method of forming a red cedar hedge :—

"The cedars should be transplanted in the three winter months, and in March. [We will venture to recommend here, March, April, and May.] They should be taken up [in the fields,] in a square sod, of the size of a spade, and deposited in a square hole to be made with a similar spade, without breaking the sod in which the young cedar stands, so as to fit as nearly as possible. Any little crevices made by not filling the hole exactly, are to be well closed,with part of the earth coming out of this hole, and the rest of this earth is to be crumbled close around the young cedar. The sod with the young cedar is to be taken up as deep as possible, in doing which the spade ought to be driven perpendicularly into the ground on three sides of the young cedar, but a-slant on the fourth, so as to cut the tap root, lest in raising the sod this tap root should hold the cedar, and so loosen its roots. The smaller the cedars are, the better. This will aid the closeness of the hedge at bottom. The

cedars are also to be two feet apart in the rows, but instead of standing opposite to each other, [for they are recommended to be planted in double rows,] across the fence, those in one row are to be placed opposite the centre of the vacancies in the other. At one year old, they should be topped with garden shears to one foot high, and the side branches clipt to within six inches of the stem. This is to be done yearly or half yearly, except at each dressing the cedars are to be left four inches higher and wider, until they acquire the height and width at which they are to be kept by yearly dressings. As some branches become too large for garden shears, the person dressing the hedge has a knife made of a piece of an old scythe blade, [the bill hook is better than either,] to cut off these. An annual dressing is indispensable to the thickening of the hedge. The richer the ground the sooner the hedge will arrive at perfection."—*Cultivator.*

Art. IV.—*Enkianthus Quinqueflorus.*

It is seldom we have an opportunity of noticing a more beautiful plant than the *Enkianthus quinqueflorus*, in the Conservatory of Hon. T. H. Perkins, which has now been flowered the third time by Mr William Cowan. It has also been flowered in the establishment of the Messrs Loddiges, London, from whence the plant was obtained.

The specimen under notice is about six feet high, of an erect habit, something similar to the *Arbutus ;* on the top of the branches are several twisted floral bractea of a transparent pink color, prettily pencilled with a dark red approaching a purple ; from these tufted clusters, the flowers, five in number, hang in a pendulous manner about an inch long, the strig of which is a beautiful coral red having a small bractea or floral leaf attached to it—the corolla or flower cup, is *campanulate* or bell shaped, with five segments revolving upwards, of a light pink color—the calyx is five parted, which clasps the corolla or flower-cup in a close manner from between each segment of the calyx—at the base of the flower are five nectarea, containing honey of a transparent red, tinged with purple, which, when the interior of the flower is examined, has a light red transparent color—but if shaded it gives a purple color—the stamens are

yellow and the apex of the stigma, contrary to most flowers, is of a green color.

The Enkianthus is a native of China, and is used by the Chinese as a decoration in their houses on festive days. The plant here is a hardy green-house, and thrives in a compost of peat earth mixed with sand and leaf mould. In the propagation, Mr C. has been successful in striking cuttings under a cap glass, in a compost mixed of sharp sand and peat mould.

Art. V.— *On the General Management of Forcing Frames and Forwarding Early Vegetables.*

The season being now advancing for forcing early vegetables, I herewith subjoin some papers that have been written at different times, when opportunities have offered to the most advantage on the subject.

Before I enter into a general method of forcing frames, it will be proper to give some directions of size and form of frames best adapted to the purpose. Where many frames are required, the best method is to have two sizes; one for early and the other for late forcing. The size that I would recommend for early forcing will be to make a frame of three lights or sashes; the frame to be of the following dimensions, viz: the length to be the same as plank from twelve to thirteen feet back and front, the width to be five feet, the depth in front ten inches, in the back eighteen inches, which is to be sloped at the ends — which will give a good slope for the purpose; the second size for general cropping may be made of the same length, but one foot under and a little deeper at the back and front.

Compost for Forcing Frames. It will be proper, at all times, to have a quantity of well incorporated compost for framing, which should be of such a quality as to answer most purposes; for which the best method is to procure a quantity of the top sod of a rich loamy pasture; to two cart loads of this add one cart load of good rotten manure, and if a quantity of leaf mould is incorporated therewith, the better; when the compost is collected, it may be formed into a regular heap and turned over two or three times during the

summer, and if not wanted to be used may be often turned in the winter.

This compost will answer most vegetables, with the exception of adding some maiden-loam for melons, and a quantity of sharp river sand for radishes and the like. It will be proper to have at hand a quantity of sand-leaf-mould, maiden-loam, and the like, to mix with the other composts, that may be wanted for different purposes.

Preparing the Materials and making the Hot-bed. Having pointed out the method of adapting the size of the frames, and compost proper for forcing frames, the next thing is the preparing and collecting the materials for the hot-bed. The best material for this purpose, is a quantity of hot horse manure from the stable, with about one half good oak or other leaves, that have been collected in the fall, mixed therewith; however, if the leaves are not at hand, horse manure will do. Having procured the proper quantity, it is to be thrown into a heap and well shaken together with a fork, and beaten moderately close on the outside, with the back of it—but not trod with the feet. So soon as the heat begins to ferment, which will be in a few days, it is again to be turned and well mixed in the same manner, and the same process may be followed three or four times, until the whole is in a lively state of *fermentation* and the rank *heat is passed off*, when the bed is to be made in the following manner.

The making the Hot-bed. The first consideration is to select a well sheltered situation, facing to the south, for making the bed; having selected the place, the ground is then to be measured off for the bed, a foot larger all round than the intended frame; this done, the bed is then to be made, by shaking the manure well together, and beating it down with the back of the fork — keeping the sides in a neat, compact, upright manner. The same process may be followed for all kinds of plants to be forced, and the height of the bed will depend on the season and the heat required for different plants.*

FORCING THE CUCUMBER.

Making the Seed Bed. To obtain early cucumbers, prepare some

* In all cases the bed should be made in as mild weather as possible, and the turning the manure the same: if done in cold days it often gets chilled, and it is very difficult again to recover the heat.

good horse manure as before directed, to make a seed bed, preparatory to the fruit bed. A one light box or frame five feet by three, will be large enough for the purpose. Commence the bed as before directed, in a warm, dry southern aspect — on a level surface ; the bed may be made from three to four feet high. The bed being made the frame is to be placed on it, facing to the south, and covered in order to draw the heat, which when it rises the inside is to be covered six inches deep with light soil, and a thermometer placed at the back of the frame to try the heat, which should be from sixty to sixtyfive deg. by night, and from seventy to seventyfive deg. by day, sun heat, when the seed may be sown in the following manner.

Sowing the Seed. Some light, rich earth should be prepared for sowing the seed, which, when sifted fine, may be put into pots nine inches in diameter. When the pots are filled with the compost, they are to be put into the frame to warm the earth, and the following day the seed may be sown, about an inch apart in the pots, and lightly covered ; the pots may then be plunged in the earth nearly up to the rim, if the heat is not too powerful, but in case of a burning heat the pots may be placed on the surface of the earth. The frame will now require to be regularly attended to, by giving *air* of a morning and taking it away of an evening, and keeping the temperature as near as possible as before directed ; if there is much steam in the bed, a little air should be left, by night, at one corner of the back of the frame, to pass it off, as too much steam is very injurious to the young plants of Cucumbers.

Potting the Plants. When the plants are eight or ten days old they will be fit for potting off, which must be done in a fine day, about twelve o'clock ; for the purpose, some light, rich earth may be prepared, and some pots the same size as before named — the pots may be about half filled with soil, when the plants may be taken carefully from the seed pots, and these plants may be carefully put into each pot, in a triangular manner, when the pot may be filled with soil to the rim.

In the operation of potting, care must be taken not to injure the plants by letting in the cold air : the potting should be performed by lifting up the sash at the back of the frame and covering the sides with bass mats.—(*To be continued.*)

Art. VI.—*On laying out Gardens and Ornamental Plantations.*

LAYING OUT APPROACHES AND PLANTING SHRUBBERIES.

In laying out approaches to the mansion or country residence, some taste is required to give an easy, graceful appearance and convenient entrance.

There is a class of respectable residences within a few miles and in the environs of towns and cities, that are particularly deserving notice of this kind, and combine more to enliven the landscape scenery around, than any other plantations, when prettily planted and ornamented, and give a *foreground* to the surrounding country of the most pleasing nature.

In laying out such places, one principal object is that the entrance or carriage-road be of an easy approach and so contrived as to appear convenient, *and really necessary to be exactly where it is laid out.*

If the house is near the road side and a square piece of ground before it, adjoining the road, which is often the case, an entrance forming a semicircular carriage-road with a gate at each end, has a very pretty effect. In such grounds the front part next to the road, may be appropriated to a grass plot or *lawn*, planted with a few ornamental trees, as the Balsam Fir, Mountain Ash, and the like, which gives a relief to the carriage road that will pass close to the front door, and have an appearance of easy access to and from the house to the carriage. The two side pieces of ground next to the house, on the left and the right, should be neatly planted with forest and shrubs: Balsam Firs, mixed with Mountain Ash, Maple, and the like, will serve an excellent purpose for the back or outline; the facing should be gradually brought down to the front with dwarfter kinds of evergreens, and deciduous shrubs, and the Rose, to within three feet of the margin of the carriage road, which will require to be bordered with a grass verge, six inches wide. At the front of the shrubs, many pretty kinds of hardy herbaceous plants may be planted to give a neat and pretty effect, and the whole, if well managed, will have a most happy appearance.—(*To be continued.*)

Art. VII.—*On the Propagation of half hardy and soft wooded Green-house Plants.* By W. H. St. Clair.

In a former paper I detailed the method practised by Mr M. Phail, in propagating pinks. At that time I did not wish to occupy too much of your pages in one article, I beg now to subjoin a few more remarks on the method in question; for some years past I have entirely discontinued the use of hand glasses in propagating any soft wooded green-house, or half hardy plants, that have fallen under my charge, and, except when I have occasion to propagate early in the spring, I find Mr Phail's method is a far surer mode of propagating, than by using hand glasses, or giving cuttings the "gentle bottom heat" so highly recommended by some. In propagating cuttings under a hand glass, a shady situation is generally selected, and great care is taken to keep off the sun's rays from affording the least heat to them; this is easily done, for a more unfit form for raising heat, than a hand glass has, cannot be well imagined; it never occurs to the person who uses them in propagating soft wooded plants, that a volume of cold moist air is not as good for raising cuttings as one fourth the same quantity of moist heated air is; in like manner, in propagating under frames, the sun's services are almost entirely dispensed with, a bottom heat substituted, in place of them; in Mr Phail's method, cuttings are forced in a comparatively short time to send out roots, and though a few cloudy days together may seem to argue against it, no bad effect, from such a cause, has ever fallen under my notice. In selecting cuttings for this mode of culture, I use only young, or at most half ripened cuttings, detaching them with the hand from the parent plant when practicable, and after trimming off a few of the large leaves, I insert the heel, or lower joint of the cutting; I give the frame a full south aspect, and raise it a few inches as directed for pinks; I allow only two or three inches between the top of the cuttings and the glass, and give them no air till they have given evident proofs of their having struck root, I shade the sash with several folds of net, pieces of paper, or a thin mat, removing it between four or five in the afternoon; on giving a good watering at planting I find very little more suffices them for the first fortnight, owing to the sash being kept close down; when rooted, I increase the air gradually. I have used frames of all

sizes, from one of six inches by nine, to one of six feet in length, and except that I find it more difficult to equalize the temperature in a small frame, I find little difference in the success of the cuttings. I must add, however, that a large sash requires the shading to be a little closer than a small one. If a mixed collection of cuttings is to be put into the same frame, they should consist of such as require about the same time to strike root, and by mixing up a compost of light loam, vegetable mould or peat and sand, under the treatment detailed above, a good many kinds may be propagated in the same frame.

Before concluding, I beg leave to enumerate a few of such sorts as yield most readily to this mode of treatment, and such as I have propagated for the last three years. Pinks, Carnations, Geraniums, (tricolor included,) Sollyas, Myrtles, Cistuses, Calceolarias shrubby and herbaceous, Fuchsias, Pansies, Salvias, Verbenas, Lophospermums, Petunias, &c.; from the certainty and facility, with which the above and many other plants of similar habits may be propagated, I have no hesitation in recommending the method to any of your readers who may feel inclined to try it, and I have every reason to think, if they try it once with cuttings, and subject those cuttings when potted, to similar treatment for about ten days, they will be induced to try the same method again. — *Floricultural Cabinet.*

Art. VIII.—*On the Sensitive Plant.*

The movement of the leaves of the Mimosa Pudica have their origin in certain enlargements, situated at the articulation of the leafets with the petiole, and of the petiole with the stem. Those only which are situated in the last articulation are of sufficient size to be submitted to experiment. If, by a longitudinal section, the lower half of this swelling be removed, the petiole will remain depressed, having lost the power of elevating itself: — if the superior half be removed, the petiole will remain constantly elevated, having lost the power of depressing itself. These facts prove that the motions of the petiole depend on the alternate turgescence of the upper and lower half of the enlargement, situated at the point of ar-

ticulation : and that contractibility is not the principle of these motions.

If one part of the plant be irritated, the others will soon sympathise, or bear witness, by the successive falling of their leaves, that they have successively felt the irritation : — thus, if a leaflet be burnt slightly by a lens, the interior movement which is produced will be propagated successively to the other leaflets of the leaf, and thence to the other leaves on the same stalk. A very clever French experimentalist, Mons. Dutrocht, found,

1st — That this interior movement is transmitted equally well, either as ascending or descending.

2nd — That it is equally well transmitted, even though a ring of bark has been removed.

3rd — That it is transmissible, even though the bark and pith be removed so that nothing remain to communicate between the two parts of the skin : except the woody fibres and vessels.

4th — That it is transmissible, even when the two parts communicate merely by a shred of bark.

5th — That it may be transmitted, even when the communication exists by the pith only.

6th — But that it is not transmissible, when the communication exists merely by the cortical parenchyma.

From these very interesting experiments, it results that the interior movement produced by irritation, is propagated by the ligneous fibres and the vessels.

The propagation is more rapid in the petioles than in the body of the stem : — in the former it moves through a distance of from three to six tenths of an inch in a second ; in the latter, through from eight to twelve hundredths of an inch, during the same portion of time. External temperature does not appear to exert any influence on the rapidity of the movement, but very sensibly affects its extent.

Absence from light, during a certain time, completely destroys the irritability of the plant. Such change take place more rapidly when the temperature is elevated, than when it is low. The return of the sun's influence readily restores the plant to its irritable state. It appears, therefore, that it is by the action of light, that the vital properties of vegetables are supported, as it is by the action of oxygen that those of animals are preserved, consequently, etiolation is to the former what asyphxia is to the latter.— *Gardener's Gazette.*

Art. IX.—*The Forest Treasures of Guiana.* By C. Mackenzie.

Having arrived at 2 degrees 36 1-2 minutes north latitude, Mr Schomburgk, on account of the approach of the rainy season, and the breaking out of intermittent fever among his party, gave up all idea of exploring the Rupunoony to its sources. The region in which he now stood, was surrounded by mountain ranges, within whose circumference and interstices were vast savannahs of a whitish clay, covered with numerous grasses and plants. The river, (which is of a milk-white appearance, from passing over the clay in question,) meandering through these extensive plains, marked its course by a fringe of fruit and forest trees; indeed, similarly fringed are all the small streams, of which the Rupunoony is the recipient; and thus the monotony of a savannah is greatly relieved. Numerous deer, but never in herds, graze here undisturbed.

One of Mr S.'s chief intentions, in ascending the Rupunoony, was to find, if possible, the plant from which the Indians prepare their celebrated *Ouralie* or *Wourali Poison;* whilst at the Lower Rupunoony, he had frequently been told that it grew on the Conocon mountains; and he now found that a journey of about a day and a half would bring him there. Guides being engaged from the encampment of Aripay, he started on the morning of the 25th of December; his way first led to the South, over pathless savannahs, fording the Rupunoony at a convenient spot; then through a tremendous mountain-pass, at the further end of which lay an extensive arid savannah. He then turned to the north, through plains covered with wood, shrubs, and coarse grass, and bounded on all sides, by rugged mountains. At the distance of about five miles on this wild and solitary road, which was frequently intersected by the mountain streams, his ascent commenced. The path, Indian-like, led over fallen trees, and between boulders of granite; and it was frequently so steep, that the party had to use hands as well as feet. After a march of eight hours and a half, they reached a settlement of Warpeshana Indians, the chief of which (Oroonappy having before met M. Schomburgk at a Piwarrie feast,) showed great joy at his arrival, and treated the whole party with the greatest hospitality. Among other things, he despatched one of his attendants to his

field, who soon returned, loaded with some of the finest sugar-canes Mr S. ever saw: indeed, the fertility of the soil in this spot was astonishing, although the height was from 2300 to 2500 feet above the plains below; the size of the plantains, and the sweetness of the bananas, greatly surpassed those of the plains; and the dark or purple banana, so much esteemed in the colony for culinary purposes, grew here in the greatest degree of perfection. The cotton, likewise, which grew around this chief's house, was of excellent quality; nevertheless, the fertility of the soil profits only a few; for, the difficulty of the ascent, and the distance, seclude the inhabitants from those in the valleys; consequently, the productions of their fields rot on the ground, and become useless to man.

Next morning, though greatly dissuaded, he continued his journey over hill and dale, mostly in a north-west direction. The path was exceedingly difficult, and Indians only could have guided him; they directed their course mostly by broken branches and by *marks* cut in the trees; sometimes hesitating for several minutes as into which direction they should turn. About noon our traveller passed a Maran tree—the *Copaifera Officinalis;* it was very lofty, with light grey bark, a fine branching head, and pinnated leaves. The Indians cut a semi circular hole towards the bottom of the trunk, and to the very heart of the tree. At certain seasons, chiefly in February and March, the balsam flows abundantly, and fills the hole in the course of a day; next morning it is put into calabashes, when it immediately forms an article of barter and sale with the colonists. Mr S. found a large quantity in the hole of this tree, which was of a yellowish color, and quite clear; the Indians eagerly annointed their bodies and hair with it. The medicinal qualities of the balsam of Copaiba are too well known to be mentioned here.

At length the Indian guides stopped in one of the glens, near a spring; and going towards one of the ligneous twiners, which wound themselves, snake-like, from tree to tree, called out "OURALI!" which is the name of the plant in the Warpeshana dialect. The stem of this very extraordinary vegetable production, is often more than three inches thick, and very crooked; its bark is rough, and of a dark greyish color; the branches thin, and inclined to climbing; the leaves dark green, and opposite, ovate, acute, five-nerved, and veined; the young branches and leaves hirsute or hairy; the hairs brown; the fruit of the size of a large apple, round, smooth,

and bluish-green, and the seeds embedded in a pulp, and consisting chiefly of a gummy matter, which is intensely bitter. Mr S. saw many heaps of the cut wood, covered over with palm-trees and leaves, which had been thus left by parties of the Macoosie Indians. The "OURALI" grows only in two or three places, which are resorted to by Indians from all quarters — often, indeed, from a great distance. Our traveller cut some of the sticks, which he carried away, and returned to the habitation of his friend Oronappy, after an absence of eight hours. He was highly delighted that, though he could not behold this singular plant in all its stages of growth, he had succeeded in collecting a few of its fruits. He has sent a very full description of the plant, with the Indian mode of preparing the poisoned arrows, to the Linnæan Society of London. His description of the latter, however, being taken entirely from the hearsay of his guides, is exceedingly deficient and erroneous, inasmuch as he has not stated that the *ourali* juice, in its *natural state*, is neither poisonous nor hurtful to the animal system; and that it derives its noxious qualities from *fermentation* and *mixture with other vegetable juices*. In fact, the Indians are exceedingly chary of giving any real information respecting their mode of manufacturing the *ourali poison*; and were it not for Dr. Hancock's long residence among them, and his keen anxiety to become acquainted with all their botanical secrets and medical practice, the scientific world would still be in ignorance on the subject. The fermentation of the juices, as well as the domestic medical practice generally, is in the hands of the elderly Indian females: these *doctresses* (from his peculiar situation among them, as well as from the great confidence which they put in his professional knowledge and discretion) were Dr Hancock's instructers in this important matter.

Leaving the Ourali district, Mr Schomburgk and his attendants descended into the savannahs by following the course of the river Maou, whose waters are of a coffee-brown color. Among the mountains, between which it has forced its course, it is about sixty yards wide, and its valley forms a peculiar mountain scenery, very picturesque, but by no means fertile. It is inhabited by Macoosies.— In April, these savannahs are inundated, presenting the peculiar feature of the waters of the Rupunoony and Maou, (the one milk-white, and the other coffee-brown) being *commingled;* and the extent to which their inundation amounts, has given rise to the fable

of the "*Lake of Parina.*" At this season of inundation, an inland navigation may easily be carried on between Demerara and Para; and several large groups of trees, which, during the dry season, rise like *oases* out of the savannahs, form small islands during the inundation: two of these groups are not far from the borders of the lake so called; and these, without doubt, are the "ISLAS IPOMUCENA," described by Don Antonio Santos. All the groups or islets consist of accumulated sand, mixed with vegetable earth — the drift matter of the currents during the inundation. The soil being richer than that of the surrounding arid district, seeds of various sorts of course, first sprang up; these being able to withstand the force of the currents, assisted in forming a large accumulation of *detritus* and seeds. These hillocks, however, though raised scarcely more than from ten to twelve feet above the savannah, have each their peculiar *floras*, consisting of the *Inga unguis cati*, several cassiæ, large *cacti*, which raise their limbs like gigantic candelabra, and a species of night-blooming *cereus*, which interlaces the other trees and plants. These are the chief botanical features of the *oases* in question, but on one of them Mr Schomburgk found several *cashew trees*, (*Anacardium occidentale*,) in full bearing. Such a discovery is most welcome to the parched traveller, when water is scarce; but the fruit, unprepared by proper cookery, exercises the most deleterious effects on the constitution.

ART. X. — *List of New and Rare Plants.* Noticed by the Editor of the Floricultural Cabinet in England.

1. *Lupinus Versicolor.* (*Party colored Lupine.*) Leguminosæ. Diadelphia Decandria. A hardy perennial species, a native of California, and has bloomed in the garden of the London Horticultural Society. The stems grow about two feet high, much branched. The flowers are produced in terminal spikes; the blossoms are variable between rose-color, pale blue, violet, pink, and greenish white, on the same raceme, but the lighter colors are generally towards the top of the raceme. It is a beautiful flowering species, and well deserves a place in every flower garden. The flowers are fragrant, something like the perfume of the field bean. It blooms from May to July, and produces abundance of seeds.

2. *Platystemon Californicus.* (*Californian.*) Papaveraceæ, Poyandria Polygynia. A hardy annual introduced into this country by the late Mr Douglas. The plant grows about eight or ten inches high, branches terminating with pale straw colored blossoms, each about an inch across. The flowers much resemble the wild wood Anemone of Britain, only differing in color. *Platystemon* from *platus* broad, and *stemon* a stamen, alluding to the broad filaments.

3. *Rhododendron Arboreum var. Cinnamomeum.* (*Cinnamon colored tree Rhododendron.*) Bricaceæ, Decandria Monogynia. In 1822 Dr Wallich sent to this country, from India, a quantity of seeds of this plant, one of which has bloomed in the nursery of Messrs Rollinson at Tooting, Surrey. The present variety is very like the white sort which has previously been noticed and been cultivated in our gardens for ten or twelve years, but the clusters of flowers are more compact, and the purple spots on the white petals are larger, darker and more numerous. The white of the flower is not so clear as in the old kind. The present kind deserves a place in every shrub border.

4. *Blumenbachia Multifida.* (*Multified-leaved.*) Loasæ. Polydelphia Polyandria. A native of Buenos Ayres, and discovered there by the late Dr Gillies. It has since been discovered by the late Mr Tweedie, and by him seeds were sent to the Glasgow Botanic Garden. This species is very distinct from B. insignis, being a much stronger growing plant, more compact, and more hisped with strings. It is perfect hardy. The leaves are much larger, but like B. insignis, they are much lobed. The flowers are an inch across, white, with a yellow, and red centre.

5. *Brodiæa Grandiflora.* (*Large flowered.*) Liliacia. Triandria, Monogynia. A bulbous rooting plant, a native of Georgia, on the north-west of America. Bulbs were sent by the late Mr Douglas, to the London Horticultural Society. The flower stem rises to eight or ten inches high, terminating with an umbel of about six flowers; each flower is campanulate, about an inch across, of a pretty blue color. It is quite hardy and flourishes freely if grown in a shady situation, and planted in peat soil. *Brodiæa*, named in compliment to James Brodie, Esq., of North Britain.

6. *Silene Chloræfolia.* (*American catchfly.*) Silenacœ Decandria, Trigynia. A hardy perennial plant, producing numerous

pretty flowers, of a pure white, delightfully fragrant. Each flower is rather more than an inch across. It is a most desirable plant for either the flower border or a rock work.

7. *Cereus Akermannii.* (*Akermann's Mexican Cereus.*) Cacteæ. Icosandria Monogynia. This splendid flowering plant has generally been considered a hybrid between C. speciosa and speciossimus, but seeds of the original plant were first sent to this country from Mexico. The flowers are as large as speciocissimus, of a fine reddish scarlet color, but destitute of the fine azure color which tinges the flower of that species.

8. *Cowania Plicata.* (*Plated-leaved.*) Rosacia Icosandria Polygynia. An hardy evergreen, much branched shrub, a native of the uplands of Mexico. The blossoms are about an inch and a half across, of a rich rosy lilac color. The flower in form very much resembles a single rose, of the size stated. They are produced numerously, and make a showy appearance. The plant is a valuable acquisition to our dwarf shrub; the plant was raised from seeds by Mr Thomas Blair, Gardener to Mr Clay, Stamford Hill. *Cowania,* in commemoration of the late Mr James Cowan, who introduced into this country a number of interesting plants from Mexico and Peru.

9. *Cypripedium Purpuratum.* (*Purple stained Lady's slipper.*) Orchidaceæ. Gynandria Diandria. This new species has been recently introduced into this country by Mr Knight, of King's Road, Chelsea, from the Malayan Archipelago. It has bloomed in the colection of Messrs Loddiges of Hackney Nursery. Its purple flower has a very pretty appearance. The foliage is very much like that of C. venustum.

10. *Gesneria Lateritia.* (*Brisk-colored flowered.*) Gesneriaceæ. Didynamia, Angiospermia. This species is a native of Brazil, received from that country to the London Horticultural Society's Garden, in 1832, and has bloomed in the plant stove at that place. The flower stem rises about two feet high, producing a number of brick-red flowers, each about an inch and a half long. This species has, till very recently, been considered to be Gesnera Sellowii, but it is now ascertained not to belong to the section of Gesnera, to which G. Sellowii belongs, but to that of G. bulbosa. Gesneria, so named in compliment to Conrad Gesner of Zurich, who died in 1565.

Gesneria Lindleyi. (*Dr. Lindley's Gesneria.*) Synonym, G. Rutila, var. Atrosanguinea. This handsome flowering species is a native of Brazil. It differs from G. rutila in many particulars. That species has axillary, solitary, flowers and has a wider mouth. The hypogynous glands are only two, whereas in G. Lindleyii they are constantly five. The flowers of this latter species are of a bright scarlet color, each about an inch and a quarter long; they are produced numerous on a raceme of near two feet long. The flower stem rises from three to four feet high.

6. *Grabowskia Boerhaavlæfolia.* (*Boerhaavia-leaved.*) Solanaceæ. Pentandria Monogynia. Synonyms. Lycium Boerhaavifolia. Lycium Heterphyllum. Ehretia Halimifolia. A spinous shrubby plant, introduced to the London Horticultural Society's Garden, from Brazil, where it is a common shrub in the woods and fields, and grows to the height of eight or ten feet. It has been found hardy enough to bear the open air of this country, when trained against a south aspected wall. It is a very branching shrub, with leaves much resembling those of Psidium Catleyanum. Each flower is about half an inch across, of a pale violet-blue. They are produced in small branching panicles. *Grabowskia* in compliment to Mr N. Grabowsky, an Apothecary at Ohlaf, an author of a work on flowers.

13. *Lobelia Cavanillesii.* (*Cavanilles's Lobelia.*) Campanulaceæ. Pentandria Monogynia. Synonym, Lobelia Persicifolia. A native of New Spain, and requires to be grown in the stove in this country. It blooms in August and September. It is an herbaceous plant, having a flower stem about a yard high, with scarcely any branches. The flowers are produced numerously, upon long foot-stalks. Each flower is about an inch and a half long of an orange-red color. The stamens are united their whole length, and form a long red tube, which adds to the beauty of the flower. The plant has bloomed in the Glasgow Botanic Garden. *Lobelia* in compliment to Mr Lobel.

14. *Lobelia Siphilitica*, var. *Millerii.* (*Miller's blue American Lobelia.*) Lobeliaceæ, Pentandria Monogynia. This beautiful flowering hybrid has been raised from seed, between L. siphilitica; and L. fulgens; or L. splendens, or some fine scarlet flower. The color of the flower is the blue of the former, with the fine scarlet of crimson of one of the others. It is quite

hardy, and produces numerous flower stems rising to the height of two feet, which continue in bloom from July to the end of summer. The plant deserves a place in every flower garden. We have twelve other fine varieties.

15. *Maxillaria Steeli.* (*Mr Steel's.*) Orchidaceæ. Gynandria Monandria. Synonym. Maxillaria Flagellifera. It is a native of Demerara, from whence it was introduced in 1835. The plant is of a very singular growth; the stems are pendulous, and the leaves are very long, extending three or four feet. They are like so many very strong rushes. The flowers are produced solitary, each rather more than two inches and a half across. They are yellow, irregularly spotted and striped with large spots, and stripes of dark purple. The labellum is of a sulphur color with dark purple veins, altogether singularly handsome. The plant has bloomed in the collection of Messrs Loddiges's of Hackney.

In the Botanical Register, Dr Lindley has noticed the following new species of Maxillaria, viz. 1, Maxillaria Rollissoni, in Messrs Rollisson's collection, at Tooting Nursery. The flowers are of a pale Lemon color, with the Labellum dotted in the middle with fine purple.

2. M. acicularis; a native of Brazil, in the collection of the Honorable and Reverend W. Herbert. The flowers are of a purplish chocolate color.

3. M. uncata; a native of Demarara, in Messrs Loddiges's collection.

4. M. chlorantha; a native of Demarara; in Messrs Loddiges's collection. The flowers are of a yellowish green, small; they are sweet scented.

5. M. variabilis; a native of Mexico. The flowers are small of a deep purple color. This species has been known by the following names M. atropurpurea, M. concinna.

6. M. tenuifolia; a native of Mexico. The flowers are of a rich purple, spotted, and broken into small yellow patches.

Art. XI.—*Winter Scenery of the White Mountains.*—No. I.

A residence of a few weeks in a flourishing and pretty town, about eighteen miles distant from the range of the White Hills, has lately enabled the writer to visit that spot. Seldom any traveller, except the man of business, is wont to take such a journey, to gaze on the magnificent desolation of winter, which reigns for a greater part of the year over this region. Ascent of the principal peak, the lofty Mount Washington, is made when the bland zephyr and the tardy breezes of summer have fanned its sides, and wakened into life and beauty the alpine plants, which, in daring hardihood, peculiar to themselves, thrive and bloom amidst the waste of rocks and despite the influence of almost continual frost. I was informed, however, that the peak in question, was ascended on the latter part of November of the last year, immediately after a snow storm and on a very cold day, by an adventurous English gentleman, under the guidance of Mr Fabyan, who keeps the excellent house, formerly occupied by Mr E. A. Crawford.

It was in the evening of the second of January, that I rode down as far as the Willey House, through the stupendous rift of the "Notch." The moon was in silent beauty and majesty shining directly over the abyss, and silvering with its mild light the precipitous mountain cliff on either side. The evening star shone brilliantly over a range of peaks, now sinking for a moment beneath some culminating point, now twinkling amidst the feathery crest of shrubs and dwarfish trees, and anon resting as it were on some bold and bare level, according as I wended my way through the narrow defile. The dense and purer streaks of snow and ice down the ravines, denoted the desolating track of frightful slides produced by rains. Scarcely a sound broke on the ear. Nature was in its accustomed though silent beauty; the murmur and music of its thousand voices, of merry birds, and leaping, babbling brooks, and prancing waterfalls had ceased, under winter's imperious sway. And yet there was the music of harmony and perfection, the eloquence of creation, in the silent appeals of grandeur and sublimity. Deity was walking, as of old, amidst the scene; invisible spirits were in attendence to minister unto the higher capacities of man. I plucked a dried flower stem of the pearly "everlasting" from the

rude but proud mausoleum of the humle family, buried beneath the avalanche four years ago, and retraced my steps to " mine inn."

The mildness of the atmosphere denoted a change of weather; nor was I disappointed on the next morning to find the highest elevations enveloped in clouds and mist. A short but pleasant ramble enabled me to catch a glorious and extended prospect from the summit of Mount Vision, (or Mount Deception, as it is commonly called;) a hill rising to the height of seven hundred and ten feet from the adjacent plain. The precipice of the " Notch " was the only unclouded portion of the White Hills — over which the sun was just breaking from the vapor, and illuminating, with peculiar splendor, its snowy sides, while far down the gap, in the most distant horizon, a narrow but clear spot denoted fair weather beyond. It seemed a glimpse to some goodly and promised land, to the access of which, were intervening dangers and perils.

I observed the " hybernal vestiges " of many interesting plants; while numerous beautiful mosses and curious lichens were visible on the rocks, now dripping with the humidity of the morning. A species of Xylosteum seemed the most abundant plant, while the withered leaves of the diminuative *Cornus Canadensis*, and the tall peduncle of an *Actæa*, denoted the garniture of summer, — of which these were sad but lingering mementos. Further up, the broad footsteps of the gaunt and grim wolf, easily distinguished by the print of the two long claws projecting from the track, served as an excellent guide to the easiest ascent, while the recent marks of the timed hare, and the screech of the blue jay reminded me that life was busy even amid the seeming barrenness of winter. Nor was I unattended. A group of fairy minstrels, bedecked in a costume peculiar to their vocation and suitable to the inclemencies of the season, welcomed my approach. With their characteristic boldness, they twitted the cheerful "Chick a dee, dee, dee!" as they flitted from branch to branch, now near and now more remote; a simple lay, but eloquent and touching. They were the black-capped Titmice, the most agile and prettiest of native birds, so well known in winter; nor unobserved amid the gayer tribes of summer. What child has not noticed them or their song, when the fast falling snow drives them to the door step, or to the tall and dry stalk of the sunflower in the garden; now with clenched claws grasping a plump seed, and anon splitting it with

remarkable facility to extract the delicious kernel? A reception so gracious, was as pleasant as it was unexpected, and added in no humble degree to the enjoyment of the occasion. I could do no less than join in their cheerfulness and glee, for nature was imprinting on my feelings, the sensations of joy and the luxury of existence, which elicit the constant chorus of praise and gratitude to the Author of All. X

Art. XII.—*Agriculture in France.* By Dr. Humphrey.

The proportion of cultivated land is considerably greater in France than in England; owing partly to the different policy of the two governments, and partly to the different modes of living in the two countries. The French eat twice as much bread as the English, and the English, three or four times as much beef and mutton as the French.

In England, the farmers own but very little of the soil, and the peasants none—the land being nearly all held by great proprietors. In France, the actual cultivators of the soil own a great part of it. The departments are cut up into an immense number of farms, and of course, most of them quite small. With industry and economy, the French peasantry are able to subsist quite comfortably, but the greater part of them have very little to spare. The agriculture of the country is said to be in a prosperous condition, and I can easily believe it is from what I saw as I passed hastily through it in the month of June. The crops were certainly very fine, and there were many unequivocal proofs of good husbandry. Still, France does not compare at all with England, in scientific and practical agriculture, nor in the beauty and affluence of its rural scenery. The best husbandry in France, is in the south and in the north. In the former, the agriculturist is aided most by the goodness of the climate, and in the latter, by skill in the rotation of crops.

Wheat is the grand agricultural staple of France, as well as of England. Some districts through which you travel, seem to be almost covered with it. I am quite sure, that I never saw so much in any single day of my life, as from Rouen to Paris.

Next to wheat, *rye* is more extensively cultivated than other of the small grains in France. As we approached the capital, I saw

more of it than I had taken notice of any where else; not in great unbroken fields, but in small patches, many of them less than half an acre, and separated by narrow ridges thrown up with the plough, at the time of sowing. Barley is not very generally nor very well cultivated. The French do not want it. They like their own wines better than English beer.

The *sugar beet*, which was introduced by Bonaparte, when the victorious fleets of Britain were blockading the continent, still furnishes most of the sugar, which is consumed by the French people. The quantity of beets manufactured in 1835, according to the Minister of Finance, was 668,946,762 lbs., and in 1836, 1,012,780,589 lbs. The value of the raw sugar from the harvest of 1835, was 30,319,340 francs; and of 1836, 48,980,000. The number of manufactories was 542. This is probably a great saving to the country even in time of peace, and it renders France entirely independent of all the rest of the world in time of war. How we at the North shall succeed in making our own sugar, is yet to be proved. The beet flourishes well upon our soil, and I see not why the manufacture may not be carried to any extent, which the demand shall hereafter require.

It is but lately, that the French have found out the value of turnips for feeding cattle and sheep; and even the potato, that most valuable of all the farinacious roots of high latitudes, has not long been cultivated, even as a garden vegetable, in France. But at present, vast quantities of potatoes are grown in the provinces of Poitou, Normandy, Limosin and the Isle of France, and in less quantities in other districts.

The *vineyards* of France are estimated at about 5,000,000 acres, or *one-twenty-sixth* part of the territory; and they are so exceedingly productive, that the grapes form, it is supposed, about one-sixth part of its produce. They are commonly planted on rocky and inferior soils. The general routine of cultivation is as follows. The vines are planted promiscuously, from two and a half to four feet.—About the middle of January, they receive the first cutting. In March the ground is dug. In April and May, the *provins* or tender sprigs are planted. In June, the *seps*, or shoots, are hoed and tied to stakes with straw bands. The vines are hoed again in August, and the vintage takes place in September or October. The *Champagne* grape vine, it is said, will last 50 or 60 years. It is

never allowed to grow more than a foot and a half high, and is pruned about the end of February, pruned again, and tied or propped up in April or May; pared and tied in June; second trimming in July; third trimming in August; vintage in September or October. In Champagne, the grapes are put into a press, and the juice is obtained by two or three quick turns of a screw. "In *Provence*, the method of pressing is very rude and simple. A man, and commonly two or three children pull off their shoes, and jump into the vats, where they trample on the grapes till all the wine is pressed out."—I need not say, that immense quantities of wine are exported from France every year to England and to the United States; nor that if nine-tenths of it were mingled with the waters of the ocean, before it reaches either country, the loss to merchants and under-writers, would be great gain to consumers. What well man in a hundred who drinks wine, needs it? Who does not know, that "wine is a mocker," as well as that "strong drink is raging?"

Nothing is more painful than to think how large a proportion of the gross produce of the earth is, in christian countries, converted into poison, first to create and then to satisfy a raging appetite for narcotic stimuli. In this country the raw materials are chiefly *apples* and *rye;* in England, Scotland, and Ireland, *barley;* in France and Italy, *grapes;* in Sweden and all the north of Europe, various *kinds of grain.* Anything to "steal away men's brains," inflame their blood, scorch their vitals, madden their passions, consume their estates, beggar their families, curse the ground with their carcases, and send their immortal souls to perdition.

I forgot to say, in the proper place, that the agricultural implements in France are, for the most part, extremely imperfect in principle, as well as bungling in construction. The plough, for example, is almost entirely of wood, and so made as to scratch and push forward the soil, instead of turning it up in furrows. In the neighborhood of Toulouse, a better plough is seen of pretty good construction. The use of oxen in the plough is pretty general in France; and their yoke is a piece of wood, one sixth as heavy, perhaps, as one of ours. It is put across the foreheads of the cattle, the extremities being neatly hollowed out so as to fit the head, and lined with sheepskin or some other soft padding. This yoke is fastened to the horns with small leather thongs, and the beam of the plough being attached to the middle of it, the equipment for labor

is complete. In the harrows you will see no iron teeth, and the use of rollers is awkwardly supplied by a plank, on which a boy rides over the furrows. The carts which I saw would make you smile, they are so long and narrow and inconvenient. The loads are sometimes bound on with a sort of rude windlass, which it would be very difficult for me to describe. It is wonderful that a people of so much natural ingenuity as the French, and claiming to hold the first rank in all the fine arts, should plod on as they do, from generation to generation, with such implements of husbandry, as would hardly do credit to a tribe of half civilized Indians.

Art. XIII.—*Miscellaneous Matters.*

On striking and subsequent culture of the Orange and Citron. (By Mr W. Whale, Elcot Park, Newsbury, Berkshire.) I beg leave to communicate to you my mode of cultivating the Orange and Citron, which I have practised for many years with great success, which may be of service to some of your subscribers — that is from single eyes with a leaf attached to it; I immure the eye in the mould about half an inch deep, and they begin to make roots very soon, sending up a strong shoot at the same time. I have stuck fifty to a hundred in a large sized pot, and scarce one of them failed, and of course a plant on its own bottom is preferable to a plant introduced on another stock. When potted, they should be watered liberally, and introduced into dung heat and shaded. I find they strike most readily in a cucumber bed, the pots plunged to their rims. The compost I generally use is rich loam and rotten dung, the pots well-drained, and about three inches of soot at the bottom of the pot, if a little old mortar, so much the better. I also find the Dahlia strike very freely from single eyes, and much the best mode for summer propagation when you wish to propagate valuable seedlings, as they make strong plants by autumn. I also find Bignonias strike freely by the same method. If you think this worthy of a place in your Cabinet, you are welcome to publish it. — *Floricultural Cabinet.*

QUINCY MARKET.

[Reported for the Horticultural Register.]

APPLES, Russet,	barrel,	2 00	to	2 50	bushel,	1 00	1 50
Baldwins,	do.	2 00		2 50	do.	1 25	1 50
Golded Pippin					do.	1 50	
Common,					do.	75	1 25
BEANS, White					do.	2 00	2 25
BEETS,					do.	50	75
CABBAGES,					dozen	50	75
CARROTS,					bushel	50	75
CELERY,					root	6	10
CRANBERRIES,					bushel,	2 00	2 25
GRAPES, Malaga,					pound	25	37
HORSE RADISH,					pound	8	11
LEMONS,					dozen	37	50
LETTUCE,					head	10	12
NUTS, Almonds, (Soft shelled)					pound	7	8
(Hard)					do	4	5
Filberts					do.	4	5
English Walnuts					do.	5	7
Castana,					do.	3	5
Pea Nuts,					bushel	1 25	1 50
Shagbarks,					do.	2 00	3 00
Chestnuts,					do.	5 00	5 50
ORANGES,					dozen	37	50
ONIONS,	bunch,	4 a 6			bushel	1 25	1 50
PARSNIPS,					do.	75	1 00
PARSLEY,					half peck	25	
PEARS, (Baking,)					bushel,	2 00	3 00
POTATOES, common,	bushel,	40		50	barrel	1 00	1 25
Chenangoes,	do.	37½		50	do.	1 25	1 50
Eastport,	do.	1 00			do.	2 00	2 25
SQUASHES, various sorts,					pound	4	6
SAGE,					do.	20	25
TURNIPS,					bushel	50	75

Remarks.—The markets appear to be well supplied with vegetables and fruits and common at this season of the year, and prices remain about the same as last month's. Potatoes are abundant at the prices quoted. Pears have disappeared with the exception of the winter baking. Onions are higher than usual at this season of the year. Of Cabbages there is a good supply. Squashes are getting scarce.

Boston, Jan. 26, 1838.

THE

HORTICULTURAL REGISTER,

AND

GARDENER'S MAGAZINE.

MARCH 1, 1838.

Art. I.—*On the Nurseries in the Vicinity of Boston.*

Mr Editor,—If you will permit me to use your valuable publication, for this communication, and, it may be, for some further remarks hereafter, it is my intention to lay before your readers a few observations made on the Nurseries in the vicinity of of Boston in the autumn of the year 1837. So far as my memorandums and memory will serve me, at the present moment, the following is an outline of the establishment of my respected friend, Mr William Kenrick, at Nonantum Hill, Newton.

The Nursery of Mr William Kenrick is west of Boston; distance about five miles. It is chiefly devoted to the cultivation of fine fruit and hardy ornamental trees, shrubs, roses, and herbaceous plants. About 25 acres (out of 60 acres which constitutes the establishment,) are at present appropriated to the purposes named. This lot is chiefly situated on a hill; which, from its exposure on all sides to winds, is much less liable to be affected by the influence of the late frosts of spring, or the early frost of autumn, than the low grounds. Trees thus exposed to the winds, from every quarter, are rendered hardy; and are the better prepared to withstand the effects of a change of climate, whether they be sent to the east, or to the west, to the north, or to the south.

I understood Mr Kenrick to say, that upwards of 60,000 trees

had been inoculated in his nursery during the past year. At the time of my visit, I found some six or eight persons employed in budding seedling peach trees. The buds, the hands were then using, I found by the tallies, were from bearing trees, and from sources to be depended upon. This is as it should be. The want of proper attention, on the part of nurserymen, has heretofore been fraught with disappointment, and the loss of much time to the cultivator. To be certain that we have the right varieties, when we *commence planting*, is a foundation on which we may safely build our hopes of *future success*. A small stock, warranted true to its name, and in fine health, and vigorous growth, is worth a dozen *doubtful* and scrubby trees. The method Mr Kenrick has adopted to register the different varieties of all his plants, appears to me a very good one. The nurserymen generally, at least in this section of the country, have of late years used every precaution, in their power, to prevent mistakes. I mention this fact, as many of my friends and neighbors have gone "further and fared worse," when they sent their orders to persons unknown to them, except by catalogue. Several hundred trees, of the different kinds and varieties of fruit, have been set out at suitable distances, by Mr Kenrick, for the purpose of producing specimens in order to *prove* the *new kinds;* a few of which are cultivated for sale.

Upwards of two hundred varieties of choice *Pears*, lately received from the garden of Professor Van Mons, of Flanders, and from the garden of the London Horticultural Societies, at Cheswick; are now under cultivation by Mr Kenrick. Other fine sorts are expected during the present season.

The varieties of the Apples, of the Cherry, and of the Peach, are on a large scale. Mr Kenrick has, it appears to me, ransacked the orchards of Europe and America, for good things. His selections are choice; yet very extensive. Gentlemen who are about to commence, or to extend the cultivation of fruits, may here make a selection of much, if not all, that is valuable in the orchard and garden.

Another portion of the grounds, are devoted to the cultivation of beautiful and hardy ornamental trees, shrubs, and *roses;*

> "Which at God's word in beauteous Eden grew;
> Queen of the flowers that made *that orchard* gay,
> The morning blushes of the spring's new day."

Additions, of the most choice kinds, are, I understand, yearly made to this department. Several varieties of the Mulberry — suitable for silk worms — are cultivated on an extensive scale, particularly the Morus multicaulis.

Among the herbaceous plants I noticed a fine collection of Pæonies ; containing most, if not all, the *best* kinds. This is a class of plants worthy the cultivation and attention of the lover of flowers. This part of Mr Kenrick's establishment, may be the subject of some remarks at a future time.

I would here, were it my province so to do, made some suggestions for the improvements in the immediate vicinity of the mansion, which is situated on the rising grouud, by a short and winding avenue from the road. The proprietor will please pardon me for making the above remark. He has done much to improve his grounds, and, if I do not greatly mistake, he will — I judge from hints dropped by himself — do much more.

From the summit of the hill, in the rear of the mansion, you have a fine view of the city of Boston to the east ; and a delightful prospect over a diversified country on all sides. The citizens of, and strangers visiting, Boston, would do well to take a ride across the Milldam to Newton, and fill their lungs with pure, fresh air, on a summer's morning, when the "Sun is but half an hour high" — here they would realize the lines of Douglass when they should call to memory their visit to Nonantum hill.

> "Dew drops, little diamonds hung on every tree,
> And sprinkled silvery lustre o'er the lea ;
> And all the verdurous herbage of the ground
> Was decked with pearls which cast a splendor round ;
> The flowers, the buds, and every plant that grew
> Sipp'd the fresh fragrance of the morning dew."

Roxbury, January 19, 1838. S. W.

Art. II. — *Experimental Farm and Garden.*

Within a few years, the science and art of useful and ornamental cultivation, have become subjects of general inquiry and attention, throughout the United States; not only by practical farmers and gardeners, but by statesmen and legislators, the illustrious in letters, and the enlightened and patriotic, in all the diversified professions and occupations, in which our enterprising citizens have been engaged. Precept and example have combined to extend information, and excite a passion for the noblest employment, in which man can labor; for it is from the earth, that he derives food and raiment, as well as the comforts and luxuries of his existence, both physical and intellectual.

The industrious arts and navigation are the vigorous offspring of agriculture, the secondary means of perfecting, increasing and rendering available, the products and interesting developments of rural labor, genius and taste; but it is the teeming and exhaustless earth, which furnishes the materials for the works of the mechanic, the construction of the vast fleets of commerce, and chiefly, the rich lading, which they transport, from one hemisphere to another. The acorns planted by Evelyn, in the reign of Charles II. supplied the timber for that navy, whose thunders were so triumphantly directed by a Collingwood and a Nelson; and the immortal author of Marmion and Waverley, when embellishing his extensive grounds at Abbotsford, with forest trees, ingenuously declared, that besides the immediate gratification, which that most interesting of all his employments afforded, he could not but acknowledge, that he was stimulated in his exertions, from the reflection, that it was possible, his groves might furnish the ribs of oak, for some future squadron, which would rival the victories of Aboukir and Trafalgar.

All the nations of antiquity, as well as those of modern times, most distinguished for their advancement in civilization, attained their grandeur from the resources of agriculture. The husbandman furnished the *materiel*, as well as the *personel* of armies; and monarchs have been powerful, in proportion to the prolificness of the soil, over which their sceptres extended.

So much does the true and practical independence of nations—the increase of their population, happiness and wealth, depend on the indigenous means of support, that it is only when the supply is

augmented, to meet the general demand, and increases with a rapidity equal to that of the inhabitants, that they may be considered, as in a flourishing and progressive condition.

Why is it then, it may be asked, that improvements in agriculture have always remained in the rear of the other great branches of art? Jovellanos,* a distinguished Spanish author, has assigned the reason. "Because it is an art more difficult to be carried on, and requires more knowledge and understanding, than those which admit of greater division; for it is, in fact, much less an art, than an admirable reunion of several of the most distinguished arts."

Before the reign of Elizabeth, England was mainly dependent upon France, Holland, and other nations for bread and clothing; but that talented and energetic queen, and her royal successors,—especially after the revolution of 1668,—gave such an impulse to agriculture, by a bounty on the exportation of wheat, and other encouragements, that the cereal grains soon became staples of exchange for foreign articles of trade; and the woollen manufacturers were so abundantly supplied with the native raw material, that they were enabled, not only to meet the demand for home consumption, but have, ever since, made nearly the whole earth tributary to them, for their various, innumerable and beautiful fabrics. Indeed, the history of the agriculture of Great Britain, since the middle of the seventeenth century, reveals the causes of her mechanical, manufacturing and commercial prosperity,—of her wealth, power and grandeur. It is the universal diffusion of intelligence, among the cultivators and proprietors of the soil, which has rendered that island more productive, and its whole surface more beautiful, than any portion of the globe,—which has covered its hills, plains and valleys, with well-tilled fields, luxuriant gardens, and magnificent villas.

While Bacon, Locke and Newton enlarged the bounds of exalted philosophy, and Watt and Arkwright facilitated the labors of the artist, by their wonderful mechanical inventions, Evelyn, Sinclair, Young, Coke, and Knight, with a host of zealous compatriots,—cheered on by nobles, princes and sovereigns, came forth, as the illustrious apostles of husbandry; and announced to the shepherd and the ploughman, that their vocation was among the most useful

* His excellent work, on the Agriculture of Spain, was published in French in 1806.

and honorable of the realm; and from the baronial castle to the cottage, the mighty influence of their teaching and example, has been conspicuously evinced,—thus fully establishing the correctness of an axiom of Davenant, one of the earliest writers on political economy, "that the real and effectual riches of a country, are its native products." *

So general and emphatic is the inclination and taste throughout England, for a residence in the country, that no one lives in a large city, except for the purpose of acquiring the means to become a proprietor of land; and it may be truly said, that the dear and proper home of an Englishman, whether noble or commoner, is under his own roof-tree, in the midst of green fields and majestic groves. It matters not, why, or where, he may have been compelled to adventure, for fortune or honors; whether amidst the tumults of London, and iron din of Birmingham, or in distant colonies,—on the ocean, or in the battle field, he is animated, encouraged and cheered on in his arduous and perilous career, by the fond hope, that he shall, one day, be restored to the venerable mansion of his ancestors; or enjoy the quiet of a cottage, in some well remembered "blissful haunt" of his youth, when—

> "High over hills and low adown the dale,
> He wandered many a wood, and measur'd many a vale."

It was in the midst of such a country-loving people, that experiments were eagerly made, by the wealthy, enlightened and patriotic, either for enriching the land, perfecting the implements and modes of tillage, or improving the breeds of sheep, cattle, horses and other domestic animals; while others with equal zeal were successfully engaged. in developing the capabilities of the soil and climate, for the introduction and multiplication of the varieties of culinary vegetables, fruits, flowers and other plants, in the different useful and ornamental departments of horticulture. Besides these very efficient means of diffusing information, numerous agricultural and horticultural societies were established, by whose generous and active co-operation, a knowledge of the science and art of farming and gardening has been universally disseminated; and now there is scarcely a county or large town, that has not its experimental or botanical garden, as well as extensive nurseries and plantations, of

* His "Discourses on the trade, of England," was printed in 1668.

all kinds of fruit, forest and ornamental trees, shrubs, flowers and every kind of useful vegetable production, which can be reared in the open air, or under the protection of Walls, Green-houses, Stoves, Conservatories and Vineries.

Like causes and measures have produced the same happy results in portions of France, Holland, Belgium, Germany, Italy, and even Russia; and it becomes our duty to profit by these examples. It is not expected that the practical operations of the large land owners, or that those dearly cherished rural propensities, and that long cultivated taste, which have embellished the scenery, and given a general aspect of comfort, ease and substantial happiness, to the great mass of the people of England and Scotland, can be immediately emulated in this country. We are, as yet, not sufficiently sensible to the grandeur, and beauties of the works of nature, or ambitious of that dignified independence and honorable distinction, which a spacious, and well tilled farm would confer on the proprietor; so far from it, there is a too general proclivity and custom among the rich and the educated, to hold the country in such terror or contempt, that they either avoid, or gladly flee from it, to congregate in the thronged emporiums of commerce; rather than seek, like Sallust and Cicero, Washington and Madison, Webster and Clay, Scott and Wilson, true domestic peace, manly exercise, exalted occupation and intellectual enjoyment, on the borders of some of our spacious bays, noble rivers, romantic mountain streams, or numerous forest embowered lakes. Still those other and efficient means, which have been so beneficially employed in Europe, should be adopted here; for they are admirably calculated to awaken a vigorous spirit of inquiry, create a deeper interest for those exalted pursuits, which they are intended to illustrate, effect an amelioration of condition among the hardy sons and thrifty daughters of Massachusetts, and exert a powerful and salutary influence, on all the branches of rustic industry, throughout New England.

The Massachusetts Agricultural Society, with those of the several counties, have done much, to advance the great object for which they were formed, and the Horticultural Society has more than answered the expectations of its founders; but to fulfil all the conditions of such institutions, an extensive Experimental Farm and Garden are indispensable, which shall embrace most of the advantages of those, of a like character, that have been successfully es-

tablished, in many of the European nations,—either by individual enterprise, liberal associations, or regal patronage.

The Experimental Gardens of the London and Caledonian Horticultural Societies of Chiswick and Inverleith, the Jardin des Plants, in Paris,—which is more than seventy acres in extent, the Institute Royal Horticole, at Fromont, the School of Rural Economy, at Alfort, and the National Farm, at Rambouillet, have been deservedly celebrated, as among the most useful institutions of modern times. The invaluable nurseries of Professor Van Mons at Brussels and Louvain, for creating new varieties of fruits from the seed, have verified a novel and most important theory in vegetable reproduction, and established a memorable epoch in the history of arboriculture. The Botanical Gardens of Chelsea, Cambridge, Oxford, Liverpool, Glasgow, Edinburgh and Dublin, and those of Leyden, Florence, Vienna, St. Petersburg, and Moscow, are well known for the great advantages, which the countries in which they are situated, have derived from them; and the facilities they have afforded for the acquisition and diffusion of intelligence, upon all subjects connected with the vegetable realm.

The best model of an Experimental Garden, and School of Instruction, is that at Fromont in France. It was founded in 1829, by the Chevalier Soulange Bodin—one of the most eminent horticultural authors and practical cultivators of the age. The Garden is at Ris, in the Department of Sein et Oise, and contains about one hundred and thirty acres of land. It embraces the study and knowledge of all plants reared in nurseries and gardens;—their multiplication and their application, both to our wants and our pleasures. Lectures are delivered and illustrated on botany and physiology, as applicable to horticulture;—the culture of fruit, forest and ornamental trees, culinary and other plants, indigenous and exotic;—and the theory and composition of landscape gardens. To complete the studies, there is a library, a cabinet of demonstrative instruments, models, implements, and an herbary. For the practical studies and employments,—besides the various labors of the grounds, which are performed by the pupils, there are groups of plantations, for the experimental operations of the Forest and Pomological Departments, and for the examination and verification of the species, and variety of fruits, and the comparison and management of forest trees.

The pupils are admitted at fifteen, and remain from three to five years. No compensation is required, as their labor is considered sufficient to defray the expense of instruction and support.

The establishment, which is required in this State, should be so far enlarged, as to include, besides a branch, like the superb institution of Fromont, farming in all its details, as applicable to our soil and climate, and a spacious Botanical Garden, scientifically arranged.

Each of these three Grand Divisions of the institution, to be under the management of well educated and practical professors, with able assistants, who are thoroughly acquainted with the theory and art, and capable of giving instruction and directing the labors of the several departments, in each of the chief divisions, and the whole to be under the control of a General Superintendent.

The means for carrying such a plan into successful operation, it is confidently believed, are immediately available,—for there is a spirit abroad among the people, as enlightened, patriotic and energetic, as the demand for such a movement is evident and imperious. By a union of the funds of the Massachusetts Agricultural and Horticultural Societies, and the Botanical Department of Harvard University, with the generous co-operation of the officers and members of these three institutions, as well as of the affluent, intelligent and liberal throughout the State, an establishment, of the character proposed, could be formed in the vicinity of Boston, which would do more to diffuse a knowledge of the science and art, and a taste for husbandry, gardening and botany, and to advance the general weal, than has been accomplished, or it is possible to effect, while each of those very valuable institutions is acting with limited means, and independent of the others.

There is a tract of land in Brookline, owned by the Hon. David Sears, and Ebenezer Francis, Esq., near the termination of the Western Avenue, where from one hundred and fifty to two hundred acres could be selected, remarkably well adapted for the various purposes of a spacious farm, and Horticultural and Botanical Gardens of Experiment. Its topographical features, and proximity to the capital, recommend it in preferen[illegible] proper distance for the convenience of those persons who may be the most active in the foundation, and interested in the success of the establishment.

Is not such a project worthy of serious consideration?—and as a first step, is it not expedient that committees be appointed, by the Agricultural and Horticultural Societies above named, to deliberate on, and report what measures may be most effectual for accomplishing so desirable an object? Conferences could be held by those committees, with the officers of the University, as to the propriety of the plan, and if sanctioned by each of these institutions, a public meeting might be called, and all persons invited to attend who were disposed to aid in the undertaking. If prosecuted with zeal, there can be little doubt, that the legislature would afford generous encouragement. To what more appropriate purpose can an endowment in land be made, out of the vast tract, owned by the commonwealth in Maine? It will not only enhance the value of the cultivated land within our own borders, to an amount far beyond that for which the former may be sold; but add thousands of acres to the domain of agriculture, which are either untilled, or so very imperfectly as to afford but little more of subsistence than the wilderness, which it proposed to render tributary to the immediate wants and comforts, and the future prosperity of the whole people.

By experiments which have been made during the past year, it has been clearly shown, that large portions of the northeastern States are capable of yielding, with proper management, as bountiful crops, as those more naturally favored districts of the country, which have been significantly designated as the "Wheat growing regions" of the Union. If the Middle and Southern States seek, as fertilizing materials, the ashes of the East, and the gypsum of the British provinces,—and the farmers of England collect the bones, which are wastefully scattered over continental Europe, and even import them from this country, to enrich their lands, why should not Massachusetts make her distant possessions subservient to that intellectual cultivation, experience, and practical skill, which will render her soil as prolific, as that, from whence we annually receive such a vast amount of the first necessaries of life. Intelligence and practical skill can convert the most barren earth into luxuriant fields; and for the attainment of those indispensable prerequisites of good husbandry,—to accomplish an object so momentous, the State will not fail to afford the most ample assistance.

Industry, guided by genius and science, and aided by art, have triumphed over all the obstacles which impeded man in the march

of civilization; they have unveiled the wonders of astronomy, and the mysteries of chemistry,—explored the three vast realms of natural history,—embalmed and perpetuated the wisdom of ages in letters,—illustrated the splendors of architecture, sculpture and painting,—discovered and approximated empires by navigation,—founded, multiplied, and facilitated lines of intercommunication by the construction of canals and railways,—pressed into their service the mighty elements of fire and water, and bade them perform the office of the winds on the ocean, and furnish the motive power of transportation, and the hydraulic energies of the cataract on the land,—and now, their last and most splendid victories are to be achieved, for the benefit of the cultivator of the earth.

COLUMELLA.

ART. III.— *The New York State Report "on Horticulture and the Household Arts, as intimately connected with the improvement of Agriculture."* By ALEXANDER WALSH, ESQ., Chairman of the Committee.

(We have been favored by Mr Walsh with a copy of his interesting report — which will, we predict, be read with interest by all who desire to see our common farmers and others overcoming their depravity of taste with respect to horticulture. Who that has observed the indifference and utter neglect common in our country in relation to the subject before us, but would rejoice to see the proprietors of the soil awakening to the importance of ornamenting their grounds and supplying themselves with an abundance of luxurious fruits and vegetables, which we say is in the power of every individual who is in possession of an acre of land. The report of Mr Walsh is well calculated to forward these important improvements to such as will read.—ED.)

MR J. BRECK —

Dear Sir:— In the recent proceedings of the agricultural society of this state, you will find a report, on the subject of gardening and the household arts, as connected with agriculture, to which my name is attached. I would solicit your attention to the report; not as a specimen of fine composition, or one which does justice to the subject; but as the best I could do, under the limited circumstances of its production. Had I been at liberty as to time and space I might perhaps, have treated the subject in such a manner as, if not worthy

of your approval, might have met your eye with less need of apology.

You will consider, it was necessary to adapt the report to the taste of the farmers as they are, and not as we would wish them; and as we have good reason to hope, at no very distant day, time will make them. There are many men in the United States, who can appreciate all the advantages and relish all the beauties of scientfic Horticulture; but unfortunately such is the taste, or rather the want of it, in most of our agricultural community, that they are frightened, even at the language.

Should the report, with these remarks, merit an insertion in your most useful Register, I would wish its readers to understand, that it was intended for the latter class, with a view, simply to coax them into favor with the subject through the hope of profit, which is all that a majority of them can understand. Had it been designed for the farmer, I should have dwelt with delight on all the rich paraphernalia of that heaven taught art. I should have endeavored to treat, with becoming deference to those of better skill, on all the enchanting beauties of design and arrangement. I should have introduced the vine covered trellis, burdened with delicious clusters; the richly stored green-house; the cooling fountain; the breeze courting summer-house; the busts of interesting characters; the marble vase and urns; the bee-hive and sun-dial and appropriate mottoes; interspersed with fruit of every name and flavor, and with rare exotic plants, and our native choice gems gathered from the hills and valleys of our vast and prolific continent. And wherever nature has furnished the means, I would not have failed to make the rock a grotto and the brook a cataract, with bridges and other suitable displays of architecture.

But by committing the subject to your hands, I hope that the persuasive influence of your periodical, will awaken the unenlightened by degrees, to a true sense of their interest; while those of refined taste will no doubt continue to find it a source of pleasure and improvement. Yours, respectfully,

ALEXANDER WALSH.

Lansingburgh, Feb. 19th, 1838.

The committee appointed to "inquire into the necessity and importance of an increased attention to Horticulture and the House-

hold Arts, as intimately connected with the improvement of Agriculture," beg leave to report —

That on investigating the subject in pursuance of the duty assigned them, they have become deeply impressed with a sense of its importance ; and they regret that the necessary degree of brevity will only permit them to touch the mere outlines of some of the most prominent arguments which present themselves in its favor.

By the term horticulture, they understand that portion of agriculture which embraces the labors of the garden — the cultivation of vegetables, fruits, &c.

It is strange, as well as lamentable, that though this appears especially designed, by the Creator, as the first and most important employment of man, yet while every useful art is improving and perfecting by the light of science, this most valuable art should be left to grope in darkness — its value remaining unknown and unappreciated. All, therefore, that your committee can do is, to endeavor to awaken the public mind from the apathy under which it sleeps on the subject ; to remove the strange prejudice which exists against it ; and to open a way for the reception of those spontaneous rays of light which present themselves from luminous sources.

And here at the outset, your committee feel under peculiar embarrassments ; for what arguments can be offered, to awaken to understanding the mind of him who can discover no profit, or receive no pleasure, from a well cultivated garden.

It is in vain that Infinite Wisdom has exerted its utmost skill in forming, perfuming and painting flowers to decorate his path, and sweeten the toils of life, if the same power has denied him a mind susceptible of the enjoyment. The depravity of public taste, with respect to gardening, has given currency to a common saying, that "good farmers seldom have good gardens," but never was a sentence more in opposition to the truth. It is so completely so, that if we look on even a remote corner of a farm, and see it well fenced and cultivated, we may almost rest assured that on visiting the dwelling of its owner, we shall find a neat, tasteful and well stocked farm garden. Indeed, so intimately connected are the moral and social virtues, with a taste for admiring aud improving the beauties of nature, that we can rarely find one without the other. There is, perhaps, no other earthly subject so well calculated to awaken and expand every faculty of the mind, and fill the soul with pleasing

admiration, as a garden of culinary plants, fruits and flowers, where art and science have done their duty in assisting nature.

Horticulture, both as an art and as a science, had undergone great improvements, in several countries in Europe; and it must be painfully mortifying to an American of patriotic feelings, who is acquainted with the subject, to see respectable foreigners, in passing through our country, notice the almost total neglect of this beautifying and moralizing branch of social economy.

The mode in which agriculture, if it can be so called, has hitherto been conducted, had its origin, no doubt, in the circumstances of the early settlers of our country. Those pioneers were not in situations to indulge refined taste; being only enabled by their utmost exertions to procure what would barely sustain life; and pecuniary necessity compelled them to cultivate such simple articles as they could dispose of, in mass, for immediate relief, and the state of society afforded no market for fruits or garden vegetables. This state of things established a distaste for any thing to gratify the eye or the palate, beyond bare necessity; and this distaste has continued with little improvement to the present time.

But a few among those engaged in agriculture, have discovered that, by rational improvements in the system, not only the same ground, with the same labor, might be made to double, and even quadruple its former productions; but that horticulture, tastefully and judiciously managed, is calculated to improve the mind, to excite and expand the intellectual faculties; and especially to increase wealth, at least as much as any other branch of agriculture.

The ancient prejudices against horticulture, are now beginning to be overcome, by the convincing evidence of successful results, and some of the more industrious and thinking farmers begin to see that a well selected assortment of choice fruit yields a greater profit, than perhaps any other crop from the same ground; that the choice new garden vegetables cost no more in the cultivation than the most coarse and common, while they add comfort and healthy variety to the table, and lessen the heavier expense of animal food. They begin in a few instances, to find that the value of a farm depends not so much upon the number of acres as upon its judicious mode of culture, and its productiveness. They see that a handsome and convenient, but not a large and extravagant dwelling, surrounded by fruit and ornamental trees, but more particularly a well-stocked

farm-house garden, not only increase their comforts and respectability, and even their wealth while in possession, but if they wish to sell, attracts the notice of purchasers and enhances the price.

Our forests abound with maple, elm, ash, and other elegantly formed ornamental shade trees, which we would recommend our agriculturists to plant along the road side, bordering their homesteads. They will thrive in almost any situation, and add beauty and value to their possessions and improve the general aspect of the country. "We never pass a tree which has been planted and nurtured by man, but we feel gratitude and respect towards the hand that did it." The cultivation of the Mulberry and the growth of timber, particularly live oak, locust and cedar, deserve the highest consideration; such trees being required, and commanding a high price for ship building, and in our growing manufactories.

In short, from the palace to the humblest cottage the business of horticulture, when carried to the perfection of which it is susceptible, appears to your committee, to be calculated, above all other branches of industry, to improve the mind and manners; to increase and multiply the comforts, and promote the wealth and respectability of the community.

We would therefore recommend to all, to use all justifiable exertions to excite a more general taste for horticulture, and to promote a more thorough and generally diffused knowledge of its principles and practice. To this end, we would recommend, that those who have any knowledge of the subject would communicate it to those who have none, and that more general attention should be paid to the various periodicals which are published and publishing on horticulture, and subjects connected with it — and they would also suggest that should the honorable legislature think proper to lend their aid to the subject, as they have done in some of the other states, much might be effected by their employing and paying some suitable person to write or compile a text book as a manual for the use of farmers and mechanics on horticulture and the household arts, and particularly on the subject of the growing of silk.

With respect to the "necessity and importance of the household arts," your committee are fully convinced, that, in the thriftiness, and good regulations and consequent happiness of society, as much depends on good housewifery as on good husbandry. It is a common saying, that "the man who would thrive must ask his wife."

These arts are not only more numerous and complicate, but susceptible of even greater improvements both from the aid of science and the dictates of common sense, than those which belong to the out-door economy; and they principally belong to the female department. The culinary arts alone embrace a more extensive and complicated system of knowledge than probably appertains to any one trade in the compass of the mechanic arts. On that system depends, not only our comfort and satisfaction in eating and drinking, and our health in the choice and preparation of food, but our prosperity in the economy of its management. The important business of the dairy depends almost entirely upon the skill of the housewife. But a few years ago they were the sole manufacturers of most of our clothing, and still a portion of it depends for its formation on their ingenuity and industry; even in the cottages of the poor, we may often admire the talents of the industrious housewife, where

> "The mither wi' her needle an' her shears,
> Gars ould clathes look amaist as well's the new."

But these important domestic arts, on which our comforts and prosperity so much depend, are too much neglected and despised. It is the duty, and ought to be the pride of every mother in America, to teach her daughters, first the most substantial and all important arts of good housewifery; and next to call forth and excite to action all their surplus ingenuity, diverting it into such channels as will elevate our national character, and by lessening dependence on foreign nations, promote independence of our own.

It is natural, and perhaps proper, for females to delight in finery; and to this end, nature has invested them with sprightly intellects to invent, and delicate fingers to construct it. But instead of availing themselves of these precious gifts of nature, our females generally appear to have almost wholly lost sight of, or never to have possessed a spark of that national pride which would prompt them to turn those talents to their own advantage. It would be deemed an insult to say that they have not as much inventive talent and refined taste as the females of France, and yet they appear to have cultivated a spirit of emulation to outdo each other in servile dependence on French fashions and French finery; (which fashions and finery do not arrive here, until cast off in France, so that the summer dresses of that country become the unsuitable dresses of

this,) until by extravagant importations of those articles, added to the immense amount paid for silk beyond our means, we have continued to plunge our country into a state of pecuniary distress, from which it will not soon be extricated. How much more independence should we display if our females would employ their leisure hours, and exert their ingenuity, in constructing ornamental dresses suited to our climate, according with their own refined taste, and let the French follow their own fashions, or servilely copy ours if they please.

Those of our young females who are destined to receive what is considered a polite education, are by the present national public taste, studiously kept ignorant of any thing which can contribute in the slightest degree to the future benefit of their families or themselves. Thus, in most of the more opulent families of the community, those important arts on which domestic comforts so greatly depend are left to the sole possession and management of domestics.

It is, therefore, of the highest importance, that females who are coming on the stage of action, should receive such education as should fit them in a greater degree for the important stations they are destined to fill. Without rejecting what are justly considered polite accomplishments, every female who is to become the head of a family, ought to have a thorough theoretic and practical knowledge of all the arts which appertain to cookery and systematic household arrangement. This knowledge would be greatly enhanced by an acquaitance with some of the natural sciences, particularly chemistry. Indeed, so important is a smattering of that branch of science, in every part of household economy, especially in the management of a dairy, that no female ought to be considered well educated without it.

But there is one branch of the household arts which your committee would strongly recommend.

By the aid of the labor saving inventions, females are relieved from a great and tedious part of their former labors, and they have consequently now a considerable portion of leisure.

There are many little household arts, by which they could manufacture little articles, which would command fair prices in market.

Many of these arts have been introduced by necessity in other

countries; and a little attention to the subject would render them sources of profit here.

There is one which we would earnestly recommend, as paramount to, and probably superceding the necessity of any other. This is growing and reeling of silk. This is, perhaps, as pleasing an employment as the human faculties can be engaged in. It is inseparably connected with a branch of horticulture, and will need some male assistance in cultivating the Mulberry trees, and erecting necessary fixtures. But the growing the silk is the appropriate work of women and children. It is periodical, leaving long intervals of rest; and the reeling is a light, easy and social employment, peculiarly calculated for delicate female fingers.

The profits arising from this business, will be equal, if not superior to those of any other branch connected with agriculture; and will need no other time devoted to it in the female department than is now devoted to leisure. It is now the heaviest item of our importations, and will find a sure market among ourselves, or will command a high price in return for its exportation.

Your committee, therefore, would most fervently urge that a proper attention to horticulture, effecting by art and science all the improvements of which it is susceptible, and similar attention to the household arts, as of the highest national importance, particularly the growing of silk, affording the surest guarantee to the independence and prosperity of our union.

Your committee would also strongly urge the importance of county Fairs, as one of the most efficient means of improving both agriculture and horticulture, and the household arts, by awakening ambition and exciting a spirit of emulation in both sexes. These Fairs would, as they have already done in many places, call forth new displays of ingenuity—choice products of the farm and of the garden, in needle work and miscellaneous subjects; and we think the legislature would do much to exalt the national character by appropriating a small fund to each county, that may have its rural society, for the support of such Fairs.

All of which is respectfully submitted.

ALEXANDER WALSH, *Chairman*.

Art. IV.—*Blight in Pear, Apple and Quince Trees.*

There has been so much written, said and sung on this subject, that like the everlasting chess question, I can hardly think what I believe myself, and it seems from the intricacy of the cause, to be involved in the same impenetrable obscurity. Theory and speculation are about exhausted, and it is full twelve o'clock with the subject and high time that observation and examination took the place of both.

I have been grievously afflicted with the blight, particularly on pear trees; and really it is too bad to watch and nurse a pear tree, and to put up with their perversity in coming into bearing, and then not only to find the fruit blasted, but the tree dying, beyond the power of relief, or hopes of resuscitation.

Now what is the cause? In the name of St. Michael, St. Germain, and the melting Virgaleuse, will not the lovers of that best of all good fruits set their noddles to work on this doubtful question, and trace the disease from its incipient stage to its crisis, and set the world right on the subject beyond cavil or speculation.

This disease has had as many causes assigned for it as there are theories for the formation of the globe, and some of them as preposterous, and like Macbeth's witches, "come like shadows to depart."

Electricity at one time was indicted and found guilty of the crime, but I believe escaped punishment from being so subtle a customer.

The tap root, piercing the cold and ungenial soil downward to a redundancy of water, has been shrewdly suspected of the mischief.

Too rich earth, and highly manured soil, has also been suggested as one of the causes, whereby a *plethory* was produced, and more sap sent up than the leaves could elaborate, which becomes stagnant, and fermentation takes place.

Disease of the leaf, either by the slug or other insect, or by the honey dew, whereby the ability to elaborate the sap is destroyed, and the sap becomes unfit for circulation.

Insects, minute and animalcular, are also charged as the secret and invisible destroyers, who perforate the bark and lodge in the

cellular tissue, and destroy and sap the very vitals of life and health; but it requires a glass equal to the one used by the author of the celebrated *moon hoax* to discover them, and in my opinion like that affair, equally a fable.

Another cause was broached by Mr Goodsell, former editor of the Genesee Farmer, that it was a virus generated in the young fruit at the period of blossoming, or from some infection generated in a blasted fruit from some cause, and sent downward by the returning sap.

Now, Mr Editor, I will even give you my opinion, and as I don't charge anything for it, I trust you will have the complacency to say, thank you, sir — or, thank you kindly — I am not particular which.

Since the theory started by Mr Goodsell, I have been making observations on the progress of this disease, and have come to the conclusion that he is right; for I have never observed a tree to be affected with a blight, until it had arrived at the period of blossoming, and I have never known a blight to commence except where there was a blighted fruit, or where it was evident one had dropped. Now whether the virus is engendered by the vitiation of the sap in the young fruit, which may have been destroyed and rendered imperfect by cold winds, rain, or other causes; or whether the disease and cause of death is occasioned by some derangement of the pollen, by the absorption of some deleterious substance; or by the adventitious contact of the pollen of the blossoms of other trees, imparting a noxious impregnation; or by the disposition by some insect of its *ovum*, which in passing through its changes, destroys and poisons the fruit, is a moot point, which he that is able to lay his finger upon, will be entitled to be ranked as rather clever, and I ask of your readers to make observations on these points :— *Whether a tree is ever affected before it comes into bearing and sets fruit — and whether it does or does not always commence on a stem that has, or has had, a blighted fruit upon it?*

I am perfectly persuaded that the tapped root theory is *tapped too low*, for a fine lot of trees were blighted last summer, which grew on the high gravelly bank of the ridge road, in a situation where no reasonable tap root would ever think of looking for cold stagnant water.

Quince trees during the last year were generally affected more

or less, and many orchards of apple trees had many of their twigs singed.

It is an important inquiry, and worthy of the investigating acuteness of your most enlightened readers.—*Gen. Far.*

Art. III. — *On the Classes of Soils, and their Properties.*

The soil is the upper portion of the ground in which plants are produced. It forms a stratum of from a few inches to a foot or more, in depth. It is usually somewhat dark in color, arising from the mixing with it of the decomposed stems, leaves, and other parts of plants which had grown upon it, and in part, often by the presence of animal substances. It is this mixture of the substance of organic bodies, with the mineral matter of the upper stratum, which distinguishes this stratum from the subjacent mass of earth or rock, to which the term subsoil is applied. The decomposed organic portion of the soil may be termed *mould*; and it is the presence of mould, accordingly, which distinguishes the soil from the subsoil.

Soils are very various in their fertility and texture. With relation to the power of producing useful plants, they may be termed rich or poor; with relation to their texture, they may be termed stiff,— and free or light. The stiff soils are those which are tenacious and cohesive in their parts; the light or free soils are those which are of a looser texture, and whose parts are easily separated. But the cohesive soils pass into the loose by imperceptible gradations, and hence, though all soils may be termed rich or poor, stiff or light, they are so in every degree of fertility and texture.

All the soils which possess this tenacious or cohesive property in a considerable degree, are termed *clays*, or clayey soils; while all the looser soils are termed *light or free*. And all soils are more or less clayey, or more or less light, as they possess more or less of this tenacious and cohesive property, or of this looser texture.

The fertility of soils is, *cæteris paribus*, indicated by the greater or smaller proportion of mould which enters into their composition. When soils are thus naturally fertile, or are rendered permanently so by art, they are frequently termed *loams*: Thus, there are clayey

loams and sandy loams; and peat itself may, by the application of labor and art be converted into loam.

The parts of plants which grow upon the surface, and are mixed with the mineral matter of the soil, may decompose and become and mould. Under certain circumstances, however, the plants which have grown upon the surface do not decompose, but undergo a peculiar change, which fits them to resist decomposition. They are converted into peat, and the soils formed of this substance are termed *peaty*. The peaty soils are of the lighter class, and are distinguished from all others by peculiar characters.

Soils, then, may be distinguished from one another:—

1st. By their texture, in which case they may be divided into two classes,— 1st., the stiff, denominated clay, 2d., the light or free, comprehending the peaty.

2d. By their utility or power of producing useful plants, in which case they are termed rich or poor.

Soils, too, from particular causes, may be habitually wet or habitually dry. Soils, therefore, may be farther distinguished by their general relation to moisture. When water, from any cause is generally abundant, the soil may be termed wet; when there is habitual deficiency of water they may be termed dry.

Subsoils, it has been said, are distinguished from soils properly so termed, by the absence of mould. Plants in growing, may extend their roots into the subsoil, and decomposing there, be mixed with it. But this is in small quantity, and for the most part, the subsoil is readily distinguished by the eye, from the upper stratum or soil, by the absence of organic matter in a decomposed or decomposing state.

Subsoils may either consist of loose earthy matter like the soil, or they may consist of rock subsoils, therefore, may be divided into two classes, the rocky and the earthy.

When the soil rests directly upon, and extends to the rock, without any intervening matter, the soil will frequently be found to be similar in the composition of its mineral parts to the rock upon which it rests, from having been formed by the gradual disintegration of that rock. This is chiefly found to be the case with the soils of mountains; for, in plains, the soil is generally formed, not by the disintegration and decomposition of the rock upon which it rests,

but by the intermixing together of the disintegrated parts of different rocks and mineral strata.

The rocky subsoils consist of granite, sandstone, limestone, chalk, and the other mountain rocks of a country. They are sometimes easily penetrated by the water that falls upon the soil, and are then termed free or porus; and sometimes they resist the percolation of water, when they are termed close or retentive.

The earthly subsoils may, in like manner, be divided into the close or retentive, and the free or porous. The retentive are those which, from containing much clay, are tenacious and cohesive in their parts, and little pervious to fluids; the porous are those which, having less clay in the composition, are more readily permeable.

Whether the subsoil be retentive or porous, the soil which rests upon it should be of good depth. If the soil be shallow on a retentive subsoil, it is affected too greatly by the alterations of dryness and moisture. And if, again, a shallow soil rests on a porus subsoil, the moisture of the soil is too easily acted upon and exhausted by heat.

A subsoil, in so far as mere texture is concerned, should be neither too retentive or too porus. But although this intermediate condition is in most cases the best, yet in a very cold and moist country, a free porus subsoil is for the most part to be preferred to one which is close and retentive. The soil, besides being affected by the texture of the subsoil, is sometimes also affected by the nature of the mineral substances of which the subsoil is formed.

If the subsoil be rocky, it is desirable that it be calcareous rather than siliceous, chalk or limestone, for example, rather than quartz. Sometimes the subsoil contains matter which is directly injurious to the growth of plants. This matter is generally found to be the oxides of metals in combination with acids. Subsoils of this kind are usually distinguished by deepness of color.

Soils, then, it is seen, are affected in their properties, not only by their own texture and composition, but by the texture and composition of the subsoil; and they are divided into the stiff or clayey, and the light or free.

The clayey soils have as their distinguishing character the adhesiveness of their parts; and this property alone will enable even the inexperienced to discriminate them. A stiff clay, when dried either by natural or artificial heat, becomes so hard as to resist a considerable mechanical pressure. On account of the tenacity of such

soils, they are tilled with more difficulty than the freer soils. They require, to fertilize them, a larger proportion of manures; but they retain the effects of these manures for a longer time. They are better suited to the cultivation of plants with fibrous than with fleshy roots or tubes.

Soils of this class, as of every other, possess many degrees of natural fertility. The poor clays form, for the most part, an unprofitable soil, because, while their powers of production are inconsiderable, the expense of tilling them is large. The clay soils of this character are generally of little depth, and rest upon a retentive subsoil. The natural herbage they produce is coarse and little nutritious, and they are not well suited to the production of the cultivated grasses and other herbage plants. They are little fitted for the growth of turnips, or other plants with fleshy roots or tubers. Such sorts have every where local names which sufficiently denote their qualities. They are termed, by not an improper figure, *cold* soils; and sometimes they are classed under the general name *moor*, which term is often used to denote soils, whatever be their nature, of a low degree of fertility.

Very different in their value and nature are the richer clays. These bear weighty crops of the cultivated kinds of corn; they do not excel the better soils of other classes so greatly in the production of oats, and still less in that of barley, in which the lighter loams may surpass them; but they are unequalled for the production of wheat, and, in many places, derive their descriptive appellation from that circumstance, being termed *wheat* soils. They are well suited for the growth of the bean, a plant, with a weighty stem, and requiring a stiff soil to support it. They will yield large returns of the cultivated grasses, and leguminous herbage plants, though they are not so quickly covered with the natural herbage plants of the soil, when laid down to perennial pasturage, as the lighter soils.

Clays, like the other soils, approach to their most perfect condition as they advance to that state which has been termed loam. The effect of judicious tillage, and of the application of manures, is to improve the texture of such soils as well as to enrich them. Thus, clays in the neighborhood of cities become dark in their color, and less cohesive in their texture, from the mixture of animal and vegetable matter, and thence acquire the properties of the most valued soils of their class.

Natural changes, however, yet more than art, have furnished the rich soils of clay. The best, for the most part, of the soils of clay, are those which are formed from the alluvial deposits of rivers or the sea. The finest natural sorts of this and other countries, are those which are thus formed. The deposits of rivers, indeed, are not always of a clayey nature. In mountainous districts they generally form soils of the lighter kinds. Where the sea, however, is the agent, or where both the rivers and the tides combine their action, the deposits generally partake of the nature of clay. Such alluvial soils have every where local terms to mark their character and fertility. On the great rivers and estuaries in England, and in what are termed *carses* in Scotland, fine and extensive districts of this kind exist.

The next class of soils is the light or free. These are readily distinguished from the last by their smaller degree of tenacity. They are less suited for the production of wheat and beans than the clays, but they are better suited for the production of plants cultivated for their roots, as the turnip and potato.

This class of soils may be divided into two kinds or sub-classes, differing from each other in certain characters, but agreeing in the common property of being less tenacious in their parts than the clays.

The first of these sub-classes of the lighter soils has been termed the sandy.

The sandy soils are of all the degrees, from barrenness to fertility. When wholly without cohesion in their parts, they are altogether barren, and are only rendered productive by admixture of other substances. The cultivated sands part readily with their moisture on the application of heat. They do not become hard like the clays, and, making no considerable resistance to external pressure, they are tilled with little labor.

The poorer sands are almost always marked by the scantiness of their natural hedges. This character they possess in common with the poorer gravels. Other soils, even the poorest, may be thickly covered with the plants peculiar to them, but the poorer sands and gravels usually put forth their natural herbs with a sparingness which denotes the absence of vegetable nourishment.

But sand, without losing its distinctive character as a soil, may possess a greater cohesiveness in its particles, and be fertile by na-

ture, or rendered so by art; and then the soils denominated sandy, become of deserved estimation. Rich sands are early in maturing the cultivated plants, and thence they are familiarly termed kindly soils. They are fit for the production of every kind of herbage and grain. They yield to the richer clays in the power of producing wheat, but they surpass them in the production of rye and barley. They are well suited to the growth of the cultivated grasses; and when left in perennial pasture, they are quickly covered with the natural plants of the soil. But their distinguishing character is their peculiar adaptation to the raising of the plants cultivated for their roots and tubers.

The next division of the lighter soils, and allied in characters to the sandy, is the gravelly.

Sands will frequently be found to be the production of flat countries, gravels of the mountainous and rocky. The characteristic of the gravelly soils is the quantity of loose stones which they contain. These stones will be found to consist of those varieties of rock which the mountains of the country afford; and the nature of these rocks will frequently indicate the characters of the soil; thus soils, of which the stony matter is very siliceous, are generally found to be barren, while those of which it is calcareous, are found to be fertile.

Sands, upon examination, will be found to consist of small particles of stony matter, and thus sands may be said to differ from gravels only in the more minute divisions of their parts. Yet in this minuteness of division, there is generally sufficient to distinguish the two kinds of soil. The stony matter of the sand forms its principal component part, while the larger stones in the gravel, which give to it name and character, seem only to be mixed with the other necessary parts of the soil. The stone of the one has undergone a considerable mechanical division, while much of that of the other has only been loosened, in sensible masses, from its native bed. Any light soil, mixed with a sufficient portion of stones, is gravel, and gravel, therefore, is nothing else than the different kinds of light soil, mixed with a greater or less proportion of stones.

Gravels, like sands, have all the gradations of quality from fertility to barrenness. The loose soils of this nature, in which the undecomposed material is great, and the intervening soil siliceous, are held to be the worst of their kind. These are, in some places, termed *hungry* gravels, not only to denote their poverty, but their ten-

dency to devour, as it were, manure, without any corresponding nourishment to themselves. As the texture and quality of the intervening earth improves, so does the quality of the entire soil; and gravels, like sands and clays, advancing through all the intermediate degrees, may become at last of great fertility.

The rich gravels will produce all the cultivated kinds of grain. Their looser texture renders them less suited than the clays to the growth of wheat and beans; but they are admirably adapted to the growth of barley and oats. They are quick in their powers of producing vegetation; and from this quality, they are in some places termed *sharp* or quick soils. They readily admit of alternations of herbage and tillage, and improve in a state of perennial pasturage. They are generally trusty soils with regard to the quality of the grain which they yield; and in this respect they differ from many of the sands, in which the quality of the grain produced does not always accord with its early promise. It is well, then, even in the best sands, to see a tendency to gravel, which denotes a sharpness, as it is termed, in the soil. Gravels, like sands, are suited to the culture of the different kinds of plants raised for their roots and tubers; and they are in so peculiar a degree suited to the growth of turnips, that, in some parts, they receive the distinguishing appellation of *turnip* soils.

The last division of the lighter soils consist of those termed peaty. The matter of the soils of this class is dark in color, spongy in its texture, and full of the stems and other parts of plants, either entire or in a state of partial decay. It is generally tough and elastic; and when dried, loses greatly of its weight, and becomes inflammable. These, the most observable characteristics of the soil termed peaty, will distinguish them, in their natural state, from every other; and even when they shall have been greatly improved by culture, enough of their original characters will remain to make them known.

Peat, it has been said, consists of vegetable matter which has undergone a peculiar change. Under a degree of temperature not sufficiently great to decompose the plants that have sprung up upon the surface, these plants accumulate; and aided by a certain degree of humidity, are converted into peat, which is either found in strata upon the surface of plains, or accumulated in great beds on the tops and acclivities of mountains,or in valleys, hollows, and ravines. Suc-

cessive layers of plants being added to the mass, it continues to increase, under circumstances favorable to its production. Water is a necessary agent in its formation, and we may believe, too, a peculiar temperature, since it is only in the cold and temperate, and not in the warmer regions of the earth, that it is found to be produced. The plants which form it have not entirely decayed, but still retain their fibrous texture; and from the action of certain natural agents, have acquired properties altogether distinct from those which, in their former condition they were possessed of. They have now formed a spongy elastic inflammable body, and so different from the common matter of vegetables as to be highly antiseptic.

The plants whose progress towards decomposition has been thus arrested, are very various. Over the greater part of the surface of the primary and transition districts of colder countries, the peat is chiefly formed of mosses and other cryptogamic plants, mixed with the heaths and other plants which had grown along with it. Sometimes the peat has been found in swamps and lakes, and at other times the humidity of the climate has been sufficient to form it in one continued bed, covering the whole surface of the country.

Of the heaths which enter into the composition of peat, that hardy species the common ling, *Cailuna vulgaris*, is the native inhabitant of the alpine countries of northern Europe, and grows in vigor, and overspreads the surface,where hardly any of the larger plants would live. But although this and other species of heath are very generally converted into peat, this is not necessarily or universally so. By the growth and decay of the roots and stems, a soil is indeed formed; but then this may take place in the same manner as in other soils, and without the actual conversion of the upper stratum into peat. This, however, in the case of the cold and moist countries of the north of Europe, is comparatively rare, for generally the heaths, from the slowness of decomposition of their ligneous roots and stems, are wholly or partially converted into peat. In the cases in which these plants are not converted into peat, a dry and turfy soil is formed, different in aspect from that formed by the gramineous and other easily decomposed plants, but still produced in the same manner, though, like the peaty soils, elastic and inflamable, on account of the great quantity of ligneous matter in its composition. The soil itself is generally thin and little favorable to vegetation. It

usually rests upon a subsoil of siliceous sand, and sometimes chalk, and then it is comprehended under the class of soils termed light.

The soil formed of peat would, from its vegetable composition, seem to contain within it the necessary elements of fertility, and yet this is not to be found to be so. The excess of vegetable matter which it contains is injurious rather than useful. In this state of nature it is often found to be as barren as the sand of the desert, and scarcely to deserve the name of soil, until the labor of art has been extended to its improvement, and even then it is not entirely divested of its original character.

The effect of a thorough draining off of the water of peat, continued for a long time, is to carry away the antiseptic matter which it contains. When the water of peat has ceased to be turbid and comes off clear, then we have the assurance that the peat is freed of the principles injurious to vegetation. This is the greatest improvement of which peat is susceptible, and when we have brought it to this condition, the main difficulty of improving it has ceased.

Peat may then be brought to the state of what has been termed loam. In this ameliorated condition it becomes a soil of the lighter kind, well suited to the culture of the larger-rooted plants. It is dark in its color like the richest vegetable loam, and to the inexperienced eye may pass as such,— But still, unless greatly corrected in its texture by the application of the earths, it is found to be porous and loose, too quickly saturated with moisture, and too easily freed from it. In this improved condition it will yield bulky crops of oats and barley, although the quantity of the grain will not always correspond with the weight of the stem, nor the quality of the grain with its quantity.

Soils, then, we have seen, may be distinguished according to their texture and constitution, when they may be divided into two classes, — the stiff or strong, denominated clays,— the light or free subdivided into the Sandy, Gravelly, and Peaty ; and all these, again, may be distinguished,

1st — According to the powers of production, when they are termed Rich or Poor ; and

2nd — According to their habitual relation with respect to moisture, when they are termed Wet or Dry.

This simple nomenclature of soils is sufficiently intelligible to the practical farmer. The farmer chiefly regards soils with relation to

their fertility, and the means of cultivating them, and he naturally classifies them according to these views. A main distinction between soils, in practice, is founded upon their comparative productiveness, and this is the distinction which is most important with regard to mere value. We constantly refer to soils with reference to their good or bad qualities, without adverting to the particular circumstances which render them of good or bad quality. We speak familiarly, for example, of land worth 30s., 40s., and 50s. the acre, without considering whether it be a fertile clay, a fertile sand, or a highly improved peat. We speak of it with reference to its fertility and value alone. But those other distinctions, which are derived from its constitution and texture, are essential when we regard the manner of cultivating such a soil; for the same method of tillage, and the succession of crops, as will be afterwards seen, do not apply to all poor soils, but are determined by the character of the soil, as derived from its other properties.

Though soils are thus distinguished by external characters, they pass into each other by such gradations, that it is often difficult to say to what class they belong. These intermediate soils, too, are the most numerous class in all countries. The soils termed peaty, indeed, form a peculiar class, always marked by distinctive characters; but even these, when mixed with other substances, pass into the earthy soils, by imperceptible gradations. We may say, therefore, that the greater part of soil consists of an intermediate class, and that it is often difficult to bring them under any division, derived from their texture alone. Such soils, however, can always be distinguished by their powers of production. They are good, bad, or intermediate between good and bad; and their relative value is determined by the produce which, under similar circumstances they will yield.— *Low's Elements of Agriculture.*

Art. VI.—*A Treatise on the Culture of Fruit.* By Pomona.

General observations on the culture and management of fruits.

There are few individual branches of Horticulture, that are more deserving of a careful observation, than the culture of choice fruit; and it may be justly said, in many cases, that there are few subjects connected with the *science*, that are less generally known and practically understood, with an exception of a few individuals that have paid much attention, and made minute investigation into the natural propensities of *fruit trees*, who have in many cases not only realized every expectation, but in many ways received a compensation from their labors, of the most satisfactory nature.

Choice fruit of almost any kind, meets a pretty general demand in most of the markets in the Northern States; nor has there been any *lack* in planting, in most parts, to meet the general demand; however, a deficiency is apparent, which must be considered partly owing to mismanagement; and unless better modes are applied and strictly attended to, the deficiency will, in a few years, be severely *felt* in many parts of the Union.

In the first place, it will be seen that there is a general mismanagement in selecting the ground and location to be planted, which, by many persons is considered a subject requiring no consideration; when on the contrary, on it depends the principal chance of success. For, if the *soil* and *location* to be planted, is not well chosen, the best efforts of *culture* will be in a measure defeated, and the produce unsatisfactory. And hence, in many places, an *idea* prevails, that it is impossible to bring the desired kinds of fruit into a healthy growth and bearing; when the deficiency lies wholly in placing it in an unappropriate situation.

The most common error of this kind, may be seen in the apple orchard, and, although the fact is apparent to any intelligent observer, no exertion is taken to counteract it, by many persons who are engaged in planting orchards at the present time. The apple-tree flourishes well in almost all parts of the Northern States, when planted in a sheltered situation, as on the base of small hills and alluvials, in well sheltered valleys; especially if the soil is of a

rich, mellow, loamy nature, which is often to be found in such locations. The contrary location is that of unsheltered hills of a poor, gravelly nature, where the chilly northern winds have their power on the trees. It seldom happens that trees so located, either flourish, or bear good crops of fruit; the trees, both body and branches, are in such situations, blown all on one side; the limbs stunted, and the bark covered with *moss*, the true indication of poverty and stagnation. The fruit from the *former* is mostly *fine*, clean, and of a good flavor and produce; the *latter*, small, wormy, and of a meagre flavor and produce. The *Pear* thrives well on stiff, clayey soils, in a well sheltered situation. The *Plum* is more local in its nature than either the apple or pear; for it seldom is seen to flourish well, and fruit in any perfection, but in that of a low, moist situation, where the soil is naturally *rich*, or made so by adding plenty of manure to it; in such places the plum does well, in most parts of the Union. The cherry on the contrary to the above, will accommodate itself to almost any location, soil or aspect, in any part of the Northern States, (providing it is not winter killed, which is sometimes the case with tender kinds,) but side banks, and dry sandy bottoms are best adapted to its health and produce. Every fruit indeed, will be found to have a natural tendency to a peculiar soil and location, which I shall endeavor to describe under the different heads of culture, as I proceed.

A mismanagement is also often very apparent in planting trees, which in many cases is badly done, and is the result of retarding their growth when young, in a manner that they never fully expand into a full growth and vigor; and hence the cause of so many stunted trees, that are to be seen in almost every place and every where. In many cases, fruit trees are much crippled in their early stage of growth, by allowing them to bear a quantity of fruit, by which their *vigor* and *vital* principal is in a certain degree exhausted, and the tree never afterwards assumes that habit that it would have otherwise attained. To the above, may be added the general neglect of pruning and thinning the branches of trees, and regulating them in such a manner that the sap has a regular flow to all and every part of them, their leaves, fruit and the like.

Under the head of culture, one very essential consideration should always be borne in mind by the cultivator, namely, *that of planting in a proper manner*, which is often but little attended to or thought

of: *trees* are often planted in a careless manner, and are merely left to chance in culture, which is the very thing that should meet the most strict attention in young trees. There are indeed but few things that require more attention than a young plantation of fruit trees, which should be well worked among, and manured almost every season. The *reverse* is often seen by young thrifty trees being planted in an uncultivated piece of ground, and perhaps neither cultivated nor manured for some years after the first introduction, when *age*, in such cases, most times rather decreases than increases their size and habit. *It is in the infant state, that trees and plants of all kinds and denominations require the best of culture and nutriment, to expand their organs, and form a good habit; indeed, the first formation is the very essence of every other expectation that is to be realized in culture, either good or bad; therefore, the result will be in accordance to the first management.*

In closing this article, it will be proper to state, that it is intended as a text only, to what is to follow; the principal object of the treatise being to condense each separate part, under its individual head, in order to guard against repetition as much as possible;—therefore, the reader must not suspect the *use* of a quantity of paper, or number of words, to be the object of the author; but a short and plain manner of coming at once at the subjects hereafter to be treated upon. In my next article I shall endeavor to describe some useful hints on the different parts of a tree, and the different food and stimulants, and how they act on the vegetable system.

Art. VII.—*Forest Treasures of Honduras.* By C. Mackenzie.

At the first settlement of the town of Balize, and previously to the use of shingled roofs, the houses of all the settlers were covered with the leaves of the Palmetto tree, (the Chamœrops Excælsa;)—and from thence, these leaves obtained the name of Bay-thatch; they supply an excellent and durable defence against the weather, and are found particularly valuable for plantation buildings. The wood of this tree, likewise, is extensivly used for all building purposes, in the Honduras. The roads throughout the neighborhood of Balize, are profusely lined with a most agreeable variety of foliage;

of which that afforded by the stately Mangrove, (Rhirophora,) the Manchineel, (Heippomane Mancinella,) and the Poponax, is the most predominant. The deleterious qualities of the fruit of the fruit of the Manchineel are well known, as furnishing the deadly poison in which the Indians dip their darts and arrows. In the Honduras, however, it is believed that cattle do not experience any injury from eating it. It seems that the noxious qualities of this tree on the human economy, are intimately connected with the leaves and bark ; for a soldier belonging to the 6th West India regiment, was, some years ago, completely deprived of the sight of one of his eyes by the accidental insinuation of some drops of rain which had fallen from the foliage of the Manchineel, whilst he was sleeping under its shade. The Poponax is a singularly beautiful and pleasant tree ; exhaling the most delicate fragrance from its small yellow flowers. One of the species of Mimosa, or Sensitive Plant, is also lavishly diffused in every quarter.

Whoever has at all become acquainted with tropical countries must have viewed with peculiar delight the grateful profusion of fruits with which these are so bountifully furnished by an indulgent providence ; the whole, or the greater portion at least, being so singularly adapted, from the exquisite flavor, taste, and other properties which they possess, to the necessities and even luxurious convenience of man. Amongst the choicest of these, which are abundantly obtained in the Honduras, may be enumerated Melons of several sorts ; Pine-apples in equal variety ; Oranges of superior flavor ; Shaddocks, Mangoes ; Guava Apples, Mammee, Cashew Apples, Tamarinds, Prickly-pears, Avocado-pears, Pomegranates, Wild Plums of many species, Sea-grapes, &c. It is, also, worthy of remark, that the Grape of Madeira was, some years ago, introduced into the Honduras, and that it is now completely familiarized to its change of situation, being in its produce, both luxuriant and abundant.

It may be observed here, that early attention was directed by the settlers at Honduras, towards the probable degree of success which might attend the culture of most of the vegetable productions peculiar to tropical situations ; and the prospect of advantageous growth was materially encouraged by the acknowledged superiority of the climate and soil of this part of the South American continent ; as well as from the circumstance of its being happily removed from the

discouraging inconvenience of frequent and continued droughts, so fatal to every agricultural attempt made in other parts; from which indeed, the greater nnmber of the West India Islands are not exempt.

The productions common to the islands in question, with a considerable variety of those more familiarly known to that part of the American continent comprehended within the tropics, are cultivated at the Honduras, with equal, if not superior success. The sugar cane, the most valuable of all, thrives with the richest luxuriance: indeed, previously to the vacation of the Mosquito shore by the English settlers, several sugar plantations had been formed on Black river; and the sugar and rum which they furnished, were very generally deemed, by the most competent judges, to be by no means inferior to the same articles from the island of Jamaica. Coffee, now become one of the most profitable articles of island culture, grows equally well. Cotton is by no means to be forgotten; there being many thriving plantations of this valuable tree in the Honduras. Indigo promises particularly to reward the labor of the cultivator; there being an inferior sort which is indigenous. Indian Arrowroot is abundantly produced; and Pimento has been for some time cultivated with the most encouraging profit.

Contiguous to the banks of the many rivers with which this country is so amply supplied, the lands would, without question, be found, from the extraordinary richness of the soil, to be exceedingly well adapted for the growth of rice; and the periodical rains would certainly be highly conducive to the perfection of this most useful grain. That which has been already produced for home consumption, in many situations, on the river Balize, in particular, has been considered, for goodness of quality, and quantity to the acre, in every respect equal to the finest rice from the States of America.

Although the foregoing are, doubtless, the most important vegetable productions, there are others which are scarcely *less* valuable, from the fact that they contribute more immediately to the relief of the wants of men and animals:—among these may be enumerated several varieties of Maise, or Indian Corn; Yams of various species; and the Cassava-root, of which a most palatable and wholesome bread is made by both settlers and natives. Until the Cassava has undergone a very particular mode of preparation, it is well known that it possesses most dangerous and even *poisonous* quali-

ties. Ulloa and others observe that it ought never to be used until the upper skin has been carefully stripped or scraped from the root; it is then to be grated and steeped in water, in order to free it from its acrid juice—the water being frequently changed. Byran Edwards, in his *History of the West Indies*, remarking on a passage from Dr Darwin, observes that Cassava, when made into bread, is rendered mild by the heat it undergoes in baking, rather than by the expression of its acrid juices;—both methods, however, are practised throughout South America, and the product is consequently one of the most wholesome and nutritious breads in the world.

But of all the vegetable products of Honduras, perhaps the best known substitute for bread is the Plantain, which flourishes so luxuriantly under the congenial influence of a tropical climate as scarcely to require the least labor or attention. Every settlement at Honduras has its Plaintain walk; and many of these comprehend an extent of one hundred acres; some much more; indeed, nothing can exceed the beauty and richness which the lengthened groves of these trees display, as the traveller pursues his journey up the course of the different rivers. The Pine-apple and Melon, being very generally interspersed between the rows of Plantains, contribute greatly to heighten the luxuriance of the scene; and the Mountain Cabbage, here and there rearing its lofty head far above the whole, adds no inconsiderable share of grandeur to the general effect.—*Gardener's Gazette.*

ART. VIII.—*Culture of Potatoes.*

HAVING had numerous applications for single Nos. of the Farmer from new subscribers, containg Gen. Barnum's account of the manner in which he has raised at the rate of 1000 bushels of potatoes per acre, we have concluded to republish it. We give in this number his directions for the preparation of the ground, planting, &c. and shall hereafter publish the directions for hoeing, harvesting, &c.

PREPERATION FOR PLANTING.

Whatever soil may be selected for this purpose, to ensure a large

crop it should be highly manured with compost, decomposed vegetables, or barn-yard manure. The latter I consider preferable when it can be obtained with convenience; if raw or coarse be made use of, it should be spread immediately before the first ploughing, on the same day, to prevent the evaporation of its best qualities, which will rapidly depart if left exposed to the sun and atmosphere.

The first should be deep ploughing, and may be done as early as suits the convenience of the cultivator. If a stiff marl or clay soil, it would be well to have it ploughed late in the fall previous to planting. Where compost, or other substances not liable to fermentation, are intended as a manure, it is better the spreading should be omitted until just before the last ploughing, after which it should be thoroughly harrowed fine and smooth as possible; then take a narrow light cultivator, or small plough, calculated for turning a deep narrow furrow,— with this instrument lay your land in drills twenty inches asunder and four inches in depth, running north and south if practicable, to admit the rays of the sun to strike the plant equally on both sides; put into the bottom of the furrows or drills about two inches of well rotted barn-yard manure, or its equivalent — then drop your potatoes. If of the common size, or what is more important, that they contain about the usual quantity of eyes, (if more, they should be cut, to prevent too many stalks shooting up together,) put a single potato in the drills or trenches ten inches apart; the first should remain uncovered until the second one is deposited, to place them diagonally in the drills, which will afford more space between the potatoes one way than if laid at right angles in the rows. The covering may be performed with a hoe, first hauling in the furrow raised on each side of the drill; then carefully take from the centre of the space the soil to finish the covering to the depth of 3 1-2 or 4 inches. By taking the earth from the centre of the space on either side to the width of 3 inches, it will leave a drain of 6 inches in the centre of the space, and a hill of 14 inches in width, gently descending from the drill to the drain; the width and depth of the drill will be sufficient to protect the plant against any injurious effects of a scorching sun or drenching rain. The drains in the centre will at all times be found sufficient to admit the surplus water to pass off. I am not at all tenacious about the instrument to be made use of for opening the trenches to receive the

manure and potatoes; this work should be well done, and may be performed with a common hoe with much uniformity and accuracy, by stretching a line to direct the operation. It is true that the labor cannot be performed with the same facility as with a horse, but it can be better done, and I think at less expense, taking into consideration the labor of the man to hold, the boy to ride, and the horse to draw the machine.

SEASON FOR PLANTING.

In this respect they are a most accommodating crop, allowing the farmer in the southern and central part of the designated district 20 or 30 days to perform the operation. The particular time depends in a very considerable degree upon the climate. In the region of my residence, (the 44th degree of North Latitude,) they may be planted from the 10th of May to the 15th of June. At the extreme north of the described limits less latitude is afforded for seed time and harvest. The good husbandman in that climate should make all practicable preparation for his crop in the fall, and plant as early in the spring as the ground is sufficiently dry and warm. Here the growth is extremely rapid, not requiring more than 90 to 110 days to perfect it. The quantity will not be quite so great as with us, but superior in quality.— *Gen. Far.*

Art. IX.—*Miscellaneous Matters.*

Elements of Practical Agriculture.—*By D. Low, Esq.*— We see no greater proof of the general advancement of science than the publication of works connected with it, and the volume before us, is among the first class productions on the science of agriculture. Few gardeners are there, who do not more or less practice in that branch of cultivation which belongs to the farmer; but if this were not the case, the rules for general cultivation are so good, the observations upon soils so numerous, and general crops so excellent, that the work is invaluable. It is, to use the words of a contemporary "as useful to the gardener as the farmer;" and the article quoted in another part of our paper, will illustrate and confirm this opinion.—*Gardener's Gazette.*

A Royal Bouquet.—Mrs Lawrence had the honor of presenting to Her Majesty, a few days since, (says the London Gardener's Gazette of Dec. 9,) a most beautiful Bouquet, which, perhaps, for rarity and beauty, was never equalled in this country, more especially considering the season of the year. For the satisfaction of such of our readers as may be anxious to know what may be produced, even in December, we subjoin an account of the contents, which we know to be correct.

Oncidium Papillio
——— Crispum
——— Bifolium
——— Divaricatum
——— Leucaultia
Zygopetalum Mackaii
——— var. Pallida
——— Crinitum Ceruleum
——— Chortelease
——— Humilie
Calanthe Densiflora
Maxillaria Picta
——— New Species
——— Aromatica
——— Stapelloides
Dendrobrium Moniliforme
——— Cuprium
——— Nobilis
——— Guttatum
——— Alatum
Cycrioclus Ventricosum
——— Specicosa Nova
Epidendrium Umbellatum
——— Rosea
Bletia Hyacinthoides
——— Speciosa Nova
Euphorbia Poinsetta
——— Splendens
——— Jacquiniflora, or Fulgida
——— Punicea
Ipomea Horsfalii
——— Pentaultus
——— Rubro Cerulea
Lælia Anceps
Lælia Grandiflora
Passiflora Byloba
——— Racemosa
——— Kermesina
——— Rosea
——— Nova Specicosa
——— Capensis
Columnea Scandens
Jasminum Album Hirsutum
——— Nova Specicosa
Russelia Juncea
Gesneria Oblongata
——— New Chilian Species
Gysomeria Oblongata
——— Longiflorea
Corea Speciosa
——— Milneri
Chorizema Nova Speciosa
Begonia Umbellata
——— Rosea
Silago New Species
Polygala Grandiflora
——— Oppositifolia
——— Hirsuta
——— Speciosa
Lechenaultia Formosa
——— Obletia
Erica Walkerii
——— Jasminiflora
——— Cerinthoides Superba
——— Pulchella
——— Odora Rosea
——— Picta
——— Princeps

QUINCY MARKET.

[Reported for the Horticultural Register.]

APPLES, Russet,	barrel,	2 00	to	2 50	bushel,	1 00	1 50
Baldwins,	do.	2 00		2 50	do.	1 25	1 50
Golded Pippin					do.	1 50	
Common,					do.	75	1 25
BEANS, White					do.	2 00	2 25
BEETS,					do.	50	75
CABBAGES,					dozen	50	75
CARROTS,					bushel	50	75
CELERY,					root	6	10
CRANBERRIES,					bushel,	2 00	2 25
GRAPES, Malaga,					pound	25	37
HORSE RADISH,					pound	8	11
LEMONS,					dozen	20	25
LETTUCE,					head	10	12
NUTS, Almonds, (Soft shelled)					pound	7	8
(Hard)					do.	4	5
Filberts					do.	4	5
English Walnuts					do.	5	7
Castana,					do.	3	5
Pea Nuts,					bushel	1 25	1 50
Shagbarks,					do.	2 00	3 00
Chestnuts,					do.	5 00	5 50
ORANGES,					dozen	37	50
ONIONS,		bunch, 4 a 6			bushel	1 25	1 50
PARSNIPS,					do.	75	1 00
PARSLEY,					half peck	25	
PEARS, (Baking,)					bushel,	2 00	3 00
POTATOES, common,	bushel,	40		50	barrel	1 00	1 25
Chenangoes,	do.	37½		50	do.	1 25	1 50
Eastport,	do.	1 00			do.	2 00	2 25
SQUASHES, various sorts,					pound	4	6
SAGE,					do.	20	25
TURNIPS,					bushel	50	75

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APRIL 1, 1838.

ART. I.— *On the General Management of Forcing Frames and Forwarding Early Vegetables.* By EDWARD SAYERS.

[Continued from page 61.]

IN continuation of my subject on forcing frames, I shall make a few remarks on covering and giving air, and proceed on the subject of

FORCING THE CUCUMBER.

Covering of the frames is very essential and should be regularly done at evening, a little before sun down; it should never be omitted in the early part of the season of a mild evening, which perhaps, in the middle of the night will change severely cold, and the crop will be lost. Recollect one neglect of this kind will destroy the whole crop. Uncovering should be as regularly attended to as the covering; for nothing injures plants more than to be confined in a frame when the sun is shining strongly on it. The sun must be considered the best stimulant to vegetation, and a lay-a-bed framer will seldom succeed. The longer plants are kept in darkness, the more feeble will be their growth.

Giving air, only requires a few hints to be perfectly understood. In the first place, it must be in all cases done gradually; that is to say, begin early in the morning by giving a little, at the back of the frame, and continue to increase as the sun grows stronger, until noon. At one or two o'clock the air may be gradually taken away till about

an hour before sunset, when the frame may be closed with the exception of a little air being left at the back to let off the steam.

MANAGEMENT OF THE FRUITING FRAME.

Having a quantity of manure prepared as directed for the seed bed, proceed to make a bed for fruiting the cucumber. The bed may be made about three feet, or three and a half feet high, and a foot all around wider than the frame intended to be put on, as directed for the seed bed. The bed being made, place the frame on it and draw the heat as before directed, letting off the rank heat at the back it; when the bed is in a proper temperature, which can be ascertained by pressing a pointed stick into it, and drawing it up, and, by pressing the point in the hand; then proceed to prepare the hills for planting.

Preparing the compost for planting.—The best compost for the cucumber is a rich mellow loam, from the top of a pasture where cattle have been laying and enriching it. This compost should be collected in the fall, and about one third of good rotten leaf mould from a frame, or other good manure mixed therewith; the compost should be turned and mixed well together before it is used.

Preparing the hills, and planting.—In preparing the frame for planting, the top of the bed may be shaken up about three inches deep and levelled all over, when the hills are to be prepared as follows: under the centre of each sash, put enough of the above soil to form a conical hill in such a manner that the top may be eight or ten inches in diameter, and about four or six inches under the glass; when the hill is warmed through, which will be in a day after it is made, the cucumbers may then be planted, by making a hole in the centre of the top of the hill, and gently turning the plants out of the pot, with the ball entire; after which, the mould may be carefully drawn around them and moderately watered, to close the soil to the ball.

Earthing the hills.—The manager should be careful always to have some compost in the back of the frame, to keep it in an equal temperature with that in the hill. As the young roots of the plants are seen to grow through the hill, a little earth may be gradually drawn around them with the hands, at different times, until they are large, when the whole of the inside may be earthed, as the plants will then be well established.

Temperature of the bed.—The internal heat of the bed may be kept from 65 to 75 degrees of heat, and care must be taken always to leave a little air at the back of the frame, to let off the internal steam; of very cold nights a mat may be hung over the place where the air is given, to mollify the harsh air as it enters.

Stopping and thinning the vines.—The young plants may be stopped as soon as they show out two or three rough leaves, by nipping out the centre, close to the first rough leaf. The after management is, to thin the vines in such a manner that they will not be matted too close together; but can in every way enjoy the sun and air. When the fruit begins to show on the vines, the shoots are to be regularly nipped off two joints from it, in order to throw the strength and support into it.

Watering, &c.—The cucumber requires plenty of water when in a growing state, and if a quantity of soap suds or liquid manure is often applied, the better. Every attention must be paid to giving air in a regular manner, covering well of a night, &c. Let the cultivator bear in mind, that strict attention is requisite, and that a negligent framer must never expect to succeed.

Lining the bed.—When the internal heat of the bed decreases, it should be renewed, by lining the outside of the bed with two or three feet of hot worked manure, which must be augmented at different times, to keep a continual and regular internal heat.

FORCING THE MELON.

The melon requires nearly the same treatment as the cucumber, in the preparing of the bed, the management of the seed bed, and the potting of the young plants. The time of sowing the seed may be nearly the same as the cucumber, although it is generally the practice to sow a week or two later.

Fruiting frame.—The fruiting bed for the melon may be prepared in the same way as for the cucumber, except that the cucumber requires more bottom heat than the melon, the melon being liable to have its roots burnt by too much heat. Having the bed in proper order for planting, a hill may be prepared under the centre of each light, as directed for the cucumber. The compost may be nearly the same, only more loamy. The plants being placed in the hills, the frame should be regularly aired every fine day, and covered every night a little before sunset, and uncovered in the morn-

ing as soon as the sun shines full on it; every attention should be paid to the welfare of the plants as recommended for the cucumber. The compost for the earthing of the bed, should be a strong mellow loam with a portion of well rotted hot-bed manure mixed with it. The melon does not require so rich a soil as the cucumber, nor so much watering. Having the compost prepared, the bed should be earthed in every way as recommended for the cucumber, in a gradual manner.

Stopping young plants.—This ought to be done when the first rough leaf is fully grown, by nipping out the leader in the centre of the plant, and again, when the plants have made a growth of eight or ten joints in length. This last stopping will be the means of throwing the plants into fruit at once.

Watering the plants.—The melon requires less water than the cucumber; and in many cases, when over watered, the vines canker and rot off, especially if the hills are dished so that the water collects about them. The hill of the melon should be always a little above the level of the soil in the frame, to let off the surface water about it. Water, at the roots, on a mild evening, as often as once a week; when the frame should be closed and well covered, in order that the vines and inside may not be chilled. After very hot days, the vines may be sprinkled over with a water pot with a rose on the spout, of an evening, about an hour before sundown, and closed and well covered. In this state, the frame will be steamed inside, which will keep down the red spider, and be congenial to the growth of the vines.

Thinning the vines.—Thinning the vines must be regularly attended to; that at no time throughout the season of their growth they should be allowed to become crowded or matted together. Every part of the frame should be filled with vines in a regular manner. Of the two extremes, I should advise the cultivator to keep the vines rather too thin than too thick, for by crowding the frame with either too many vines or fruit, the crop will be materially injured.

Stopping the vines for fruiting.—When the fruit of the first flowers are swelling as big as marbles, the shoots may be nipped off one joint from the best formed fruit, in order to throw the strength into it, and make it swell freely.

Thinning the fruit.—When the fruit is set freely all over the

frame, it may undergo a regular thinning, by selecting that which is the best formed and of a healthy appearance to remain; and taking off any deformed fruit, and a portion where it is too thick; this thinning will throw vigor into the vines and cause the fruit left on to swell and form in a handsome manner.

Ripening the fruit.—When the fruit is beginning to color, the watering must then be suspended; as too much water spoils the flavor of the fruit. Plenty of air must also be given at every opportunity, when the fruit is ripening.

FORCING RADISHES AND POTATOES.

A moderate hot bed may be prepared at any time after the first of March for forcing radishes and potatoes. The manner of making the bed and materials is the same as that recommended for cucumbers, with this exception, namely — that if possible, nearly all leaves are the best to be used to give *heat*, and the bed should not be so high, as the heat required will not be over 50 degrees.

Having the *bed* made place on the frame as before directed to draw the heat. When the heat has risen cover the whole of the inside of the frame with light rich earth about eight inches thick and close the frame again to draw up the heat; when the heat begins to rise the seed may then be sown regularly over the bed, and some fine earth sifted over it and gently beaten down with the back of spade or shovel. Care must be taken in this stage of forcing that the frame is not kept too much confined, but plenty of air admitted in the day, and some left off at night to let off the steam that will arise: the temperature should be kept from 45 to 50 degrees, and never over; when the radishes begin to appear, which will be in a few days, every attention should be paid to give them plenty of *light* and *air* or they will be drawn in a weak and sickly state which they will never fully recover — care must be taken to let off the steam at the back of the frame, particularly when the *sun* shines on it; *but this must be done in a cautious manner when it is freezing severely, or, in many cases, the cold air let in being too powerful for the internal, freezes the young plants, and the sun acting on them scalds them in a manner that they can never recover.* This remark I hope will serve through the whole process spoken of in forcing frames. The temperature may be regularly kept through the process of a moderate degree of 50 to 56. Every precaution must be

taken to give plenty of air of a fine day and cover well at night. When the young plants are coming into rough leaf, they are to be then thinned to a regular distance of two or three inches apart. The bed may now be regularly watered of a warm morning about sunrise if not frosty, and the frame may be closed an hour or two but not too long to scald the leaves of the plants: this process may be continued, and if the heat of the bed is declining a fresh lining may be applied. Recollect the bottom heat should increase with the season, and not decrease as is often the case.

FORCING THE POTATO.

For forcing the potato a bed may be in every manner prepared as for that of the radish, with the exception that six inches of soil will be sufficient at the first commencement: having the bed prepared, the potatoes may be planted in rows about a foot apart and eight inches in the rows, the planting may be performed by pressing the potatoes on the surface of the soil, when the earth is warmed through three inches, more may be covered over the potatoes; and after the plants come up some inches, six inches may be given as a final earthing.

During the process of forcing, plenty of air may be given of a fine day and every precaution taken to cover well of a night to keep out the frost, which, if allowed to freeze the tops, will greatly retard their growth.

FORWARDING CABBAGE—CAULIFLOWERS—LETTUCE.

In order to forward cabbage, lettuce, cauliflowers and other esculent vegetables, a moderate hot bed may be made about the beginning of March and covered with about six inches of good soil, and in every way managed as for the radish and potato.

When the bed is in order, the seed of the different kinds of plants required to be grown may be sown in drills three inches apart and lightly covered with leaf mould — when the plants are come up and the rough leaf appears they may be thinned to a regular distance and moderately watered of a warm morning. In order to have the plants strong and vigorous for replanting in the garden they may be transplanted out into a second frame two or three inches apart each way.

In the process of growing the plants every care must be taken to give plenty of air of a fine day, and covering the frame of a night, that the frost may not retard their growth.

TOMATO—EGG PLANT—PEPPER.

The above kinds af vegetables may be forwarded in precisely the same manner as the latter — with the exception that more heat will be required and less air given. The heat given for the cucumber will answer, and if manure and frames are not to be had at the early part of the season; the seeds of the different kinds may be sown in large pots and placed at the back of the cucumber frame until the middle of March, when they are to be transplanted out into a bed with a little bottom heat in the same manner as recommended for the cabbage and lettuce. The egg plants must be planted four or five inches apart in order to give them room to grow to large plants before putting them out in the natural ground.

HARDENING OF PLANTS FOR PLANTING OUT IN OPEN GROUND.

Before closing the subject of framing, I must give some few remarks on hardening plants for planting in the open ground. There is nothing that is more simply done than forwarding the vegetables spoken of, and few things generally worse managed.

In the manner of framing, the plants are generally at first mismanaged by growing them too slender, owing to keeping the frame too mnch confined, and consequently they are by the heat and steam drawn weak and succulent. The next common error is that so soon as a change of warm weather or days appear, the sashes are altogether taken off in the day, and in many cases are left off at night, and often the consequence is that the plants are frosted and retarded in their growth. The plants should be gradually hardened off as the warm weather increases.

FORCING OR FORWARDING VEGETABLES IN TIN CANISTERS.

The credit of this novel mode of forcing or forwarding vegetables is due to a French gentleman, some years since a superintendent to the late Doctor Hosack, of Hyde Park, N. Y., who practised it very successfully at that place. The method is so simple that any intelligent person may practise it with every facility, when once acquainted with the process.

The canisters are simply made of a piece of tin forming a tube of different dimensions, from eight inches to a foot in length. The width on the top is from three inches to six; on the bottom from four to eight. These different sizes must be used according to the vegetable to be cultivated.

Having the canisters prepared, the bed may then be made in the usual manner, of a heat corresponding with the nature of the plants to be forced. The bed being made, place on it the frame and level the manure; draw the heat, &c. as before directed. When the bed is in proper order to receive the earth for planting, then place the tin canisters into it, the largest end downwards; when the frame is filled with the canisters, fill them with soil, and the places between them, so that the whole is level with soil, to the top of them. This done, close the frame to draw the heat, after which, seeds of the different kinds of plants required, may be sown in the centre of the top of each canister, to form hills or the like for transplanting. The management of the frame must be in every way corresponding to the nature of the plants; and they must be managed in a manner to harden them previous to their being transplanted into the ground, as before directed.

Transplanting the plants from the Frames.—The operation of transplanting must be very carefully done, as the plants will be much injured if the roots are broken by removing them. The method I have generally adopted, is, first to take away the frame, then clear away the soil from the first row of canisters; this done, take up the canisters carefully, by placing a sharp spade under the bottom, cutting it from the soil, and carefully placing it with the ball entire in a wheelbarrow. Having the ground well prepared, the planting is performed by preparing a hole the depth of the canister, which is placed therein and the earth placed about it in a neat compact manner: the canister is then gently slipped up, without disturbing the roots, and the plants watered, in order to close the loose soil about it.

This system is particularly adapted to Indian corn. I hope to see the time when this method will prove of advantage to the forcing of early vegetables; but I am of opinion that it will be much improved by making moulds of pot earth of the same consistence as for flower pots, of the same dimensions recommended; and I give a word of advice, for potters to commence on a small scale.

Art. II. — *Vines in Pots.*

The series, of which this is the introductory paper, I dedicate to the amateur gentlemen, who, with leisure to devote sufficient attention to a mode of culture, which comprises some of the most refined operations of horticulture, brings to the work a mind free from prejudice, and prepared to admire the beautiful phenomena revealed by the "microcosm" in every period of its daily progress. When the rapid course to complete maturation, and intense power of fertility of a little rod, (the roots of which are circumscribed within the limits of a small cylinder,) are placed in contrast with the expanse required by the same subject planted in the open border, the mind may be permitted to indulge itself in some latitude of feeling.

The genuine advocates of pot culture, while they remain true to their principles, and are in no way daunted by the senseless clamor of their unintellectual opponents, have never pretended, for one moment, to impugn the well proved method of growing grapes on the rafters; nor to recommend any substitute for that method. They merely say, that a crop of fine grapes may be produced at any season, early or late, before or after the one upon the rafters; or, if a still more definite object be contemplated, they assert that any one who wishes to experimentise, and amuse himself, may produce the finest fruit from plants growing in little more than a peck of mould, which, with every appurtenance, he may place upon his table, without trouble or inconvenience. I shall begin with the first principles, and persist, till I have revealed every process, in the order of its course; but, as many persons may be supposed to have raised a stock of plants from which they hope to take fruit during the ensuing summer, it will be right to say a few words upon the treatment to which the vines ought to be subjected.

A vine, planted in a pot, requires a certain period of repose, be its age and condition what they may. Those plants which are short jointed, having the eyes prominent and numerous, upon a single rod from five to seven feet long, of well ripened wood, may be considered fruiting vines of the ensuing spring. They should, at this season, be in pots of the size termed fours, placed at the foot of a wall that has a north aspect, to which each shoot ought to be lightly secured by a couple of nailed shreds. These vines, and also the smal-

ler plants not fully prepared, should equally be thus wintered, and protected by a bed of stable-litter, or fronds of fern laid over and around the pots. Nothing further need be done till the period of forcing approaches, unless, indeed, it be, in the event of very mild, serene, and dry weather, to give to each a supply of rain water sufficient to keep the mould a little moist, but no more ; in a word, the balls should never be suffered to become arid.

I shall have occasion to recur to fruiting rods in due time ; at present, the season of the year calls for immediate attention to the preparation of young vines. This is of vital importance, and the term applies to the whole educational progress of the plant, during which unremitted attention must be devoted to two or three points. on which depend the ample and fertile developments of the plants, The foundation stone is laid by a judicious selection of cuttings, because, as Mr Stafford of Wellersley, has correctly observed, *barrenness* may as readily be extended as fertility. Therefore, the cuttings ought to be taken from the proved fruit, bearing shoots which are annually produced by vines of semi-hardy, prolific constitution : such are the black Hamburgh, now the reigning favorite of the day—elect above the rest, the Frankenthal-vulgo, Frankendale, with a more richly tinted black berry ; and as respects raciness of flavor and musky *bouquet*, (if this vintage term be admissable,) the true *purple constantia* of the *Cape*, first introduced by Speechley. The beginner should not affect an extensive assortment, he should be content with two or three fine varieties, and at this season, obtain a few dozens of fertile spurs, furnished with an inch or half an inch of two or three year old wood at the base, with three closely set joints of the yearling fertile wood. Suppose then, these cuttings to be six inches long ; then, let each be fitted to a narrow, deep pot ; so that, if the heel of the cutting lie on the bottom, close to one side, the point of the young wood, an inch above the top bud, may rest upon the rim of the pot *on the opposite side.* Having thus fitted the cuttings, let five parts of two-year old leaf-mould be thoroughly blended with one part of the fibrous and half withered grassy portion of a turf heap, made early in the autumn from sods collected on a sheep common or rich pasture, the earth of which is a light *unctuous* loam. These turves should be broken to pieces, and the raw earth sifted from them ; thus, an active, open, vegetable compost will be produced, which will be rendered still more efficient by adding a

sixth of pounded oyster shells, or half that quantity of very finely crushed bones.

This prepared soil is a medium which can disappoint no one; it is truly artificial, and quite free from any perplexing ambiguities whatever; this cannot be said of loamy composts: though light, enough of the earth attached to the grass-roots remains, to give tenacity and staple to the decomposable matter of the leaf-soil and fibres. In the absence of turfy sods, the earth obtained from decayed couch, recommended in our last article on the pine-apple, will be found an excellent substitute, and so it will throughout every stage of the vine's progress. The cuttings, pots and soil being ready, lay an oyster shell over the hole, and half an inch of the fibrous mass from the turves upon the bottom of each pot. Press this till it be quite solid, then place the cutting obliquely across—its heel (first pared flat) resting close upon the fibrous layer; apply the prepared soil, and put it close around every part of the cutting, bring it up so as just to cover the top bud, pressing with the fingers, to close every vacuity, and finish off, by sprinkling a quarter of an inch of fine sandy earth to produce a level surface at three-fourths of an inch below the rim. Give water sufficient to make the earth freely moist, and place the prepared pots in a cold frame, or under the protection of a shed, till the forcing season arrives. Of *that*, the next article shall take ample notice: in the mean time, the physiological reader will hardly need to be informed, that the embryo eyes which exist about the point whence the younger wood emerges, are in a position to develop numerous fibres, the first and second eyes upon the bearing wood will also be stimulated with their radical appendages; and yet they are too deeply seated below the surface of the soil, to permit them, in ordinary cases, to send up a growing shoot. The *upper bud* will grow; and from a point near its base, some powerful roots will very probably emerge; but whichever of the two upper buds produce the stronger shoot, *that alone* will be preserved, to be nourished by the joint efforts of the numerous masses of absorbing feeders that will assuredly be sent forth into a bed of aliment, which never can become hard-bound or impenetrable. Of twelve cuttings of a Hamburgh, and as many of a Frankendale, not more than three or four produced sub-soil shoots; and in these cases, the failure of the uppermost, might he assigned to actual injury.—*London Gardener's Gazette.*

Art. III. — *Winter Scenery in the Vicinity of the White Mountains.*

NO. II.

The scenery near the White Hills, especially in winter, is peculiar and interesting. On an elevation of more than seven hundred feet above the level of the sea, the immediate vicinity, from which I write partakes somewhat of the Alpine character of the more mountainous region, which rises above it. These lofty peaks have a great and constant influence on the atmosphere in their neighborhood ; making long and tedious winters, tardy springs and fleeting summers. Great fluctuations are thus observable. Mercury has been known to have congealed at Franconia; (a village noted for its cold,) and even during the present unusual, mild winter, we have seen the thermometer denote a degree of cold seldom known, unless in regions like this, or in those of a more northern latitude.

But severe as are the winters, and though protracted their reign, Nature is not wholly devoid of subjects of beauty. Even the stern and unrelenting cold approaches so insidiously and exercises its mighty dominion so noiselessly, that it seems robbed of half its terrors. The dull, leaden, overcast sky of a December's day with now and then a snow flake uncertain whether to fall or no, will suddenly towards evening, be broken into masses of brilliant clouds, assuming in their quick and successive changes the richest hues and combination of the prismatic colors, as the sun gleams forth in the west denoting a clear and bright tomorrow. Mountain peak and forest are lit up with crimson and purple and rosy tints now fading and now changing into the sombre hue of the evening. The gray and dull vesture of the hills, produced from the mingled snow and dark shrubbery, is more resplendent than all the curious mechanism of art could effect ; while earth and sky compose at such a moment, the lofty and magnificent altar and dome hung with inimitable tapestry, of the temple of Nature's God.

The next day rises still, clear and bright. Not a cloud is perceptible. The white smoke ascends in a straight and tall column, unbroken by the slightest breath of air, and may be seen from many a cottage amidst the evergreen woods. The distant or more immediate hills stand out with a remarkable sharpness and distinctness, the

loftier glittering in silver sheen, the less elevated, dark with thick forests, save where a snowy patch denotes the industry of agriculture or the ravages of accidental fire. The thermometer will have fallen during the night to twenty or thirty degrees below the zero of Fahrenheit's scale, and winter have assumed in a few hours its stern dominion.

The clearness of the atmosphere already noticed is worthy of further observation. The rapid change from mildness to cold produces not unfrequently a beautiful effect. The vapor during the day rising from the sheltered valleys, the brooks and other streams, suddenly congeals in sparkling and varied crystallized forms, investing in radiant gems each tree, shrub, and twig. This phenomenon is unlike that more brilliant but destructive kind sometimes noticed in other places after a rain and thaw, which loads the forest and the fruit trees with masses of ice, so injurious to their prosperty and threatening with disappointment the hopes of the horticulturist. Ours is of a more agreeable nature, less resplendent, but harmless and short lived. As you pursue your accustomed and solitary walk you cannot help observing the delicate and withered herbage just elevated above the snow, hung with these tiny gems. The panicle of the Poa or perchance the more interesting branched flower-stem of the Trichodium, (grasses common by the way side,) are thus bedecked with the exquisite jewelry of the frost-king. Are you curious to examine them more minutely and at your leisure? I presume on the fact, gentle reader! that you are a Naturalist and can admire the fabric of even a snow flake, when your attention is directed thereto. Pluck then with care,the sparkling clusters, and with a pocket lens, which is an excellent companion to the observant rambler, stop for a moment to admire those elegant angles, those regular lamina, those fine striæ and markings, and even the mimic prism reflected on the smooth surfaces. And just under that projecting piece of turf covered with several kinds of mosses, accidentally left bare, is a deserted web of the spider, — which forsooth has sought warmer and safer quarters from its winter residence, leaving behind its useless tenement of silken threads :— pendent from one of its broken fibres, do you see those two little glittering stars so nicely balanced, veering in the almost motionless air which as they turn their surface towards you betray their presence? Add them to your gleanings; the keen atmosphere will prevent their resolving into the liquid drop from which they were formed.

Should I again have the pleasure of your company, our next walk, reader! shall be on a similar morning of a milder cast, succeeding a thaw and immediate fall of snow. The atmosphere is clear and bracing, the sun bright, and the day propitious for an excursion. The muddy roads, deeply cut by the wheels and now frozen stiff, scarcely covered with snow, are rather rougher than is consistent with easy progression; but pedestrians are not wont to complain especially when every other circumstance is favorable. The dark foliage of the spruce and fir, the broad pendent limbs of the tall white pine, and even the mingled bare branches of the deciduous trees are covered with the pure snow. Observe that better formed and more spreading evergreen so singularly invested with this mantle as to resemble in no inapt manner those vernal displays of white blossoms and mingled green, which periodically adorn our woods. And then again, our very path is radiant with beauty. See how nature in sportive fancy and with her busy operations, has been amusing herself some hours since in bedecking with crystals the several objects on every side. We are the first travellers on this road since the snow fell, except that solitary individual whose broad footstep, indented on the soft mud, has left the imprint of his late wanderings. Each tract is now frozen in shape, and no snow has fallen to cover it from observation. But nature meanwhile has employed her chemist, the obedient frost-king, who with his magic has converted the rising vapor of the warm earth into stars and rays and needles and all the configurations of ice. The very track which otherwise would have marred the smooth and pure mantle of winter, has been made conducive to its charms. Little thought the plodding traveller, tired perhaps with the exertion of his journey, how his simple instrumentality would administer to our pleasure and instruction. Thus in society many a virtuous deed becomes efficacious when its author has passed into oblivion. — And then too that rude and picturesque watering trough with its long gutter constructed to lead the pure and sparkling liquid from that little basin just under the stone yonder, which still bubbles in summer's drought or winter's vigor. What huge icicles are hanging from its sides; some transparent as glass and others of milky opacity, seeming to be alabaster pillars for its support. Others are mimic stalactites; and rising to meet them from the ground are similar stalagmites, such as are increasing drop by drop in the dark limestone caves of places geologically different

from this. There is a broken branch beaded with globules, and here the very blade of dried grass invested with elegant and symmetrical forms. The Naiads of the Fountain have hung with brilliants and diamonds of unrivalled beauty its homely apparatus in honor of the Monarch of the " inverted year."

Nor are the woods destitute of other subjects of inte est. The scream of the blue jay announces the presence of one of the most brilliant denizens of the forest. There is the splendid beau, perched on the highest limb of that dead tree, erecting his feathered crest, jerking and nodding, bowing and fluttering to attract admiration. The beauty of his plumage and the hardihood of his constitution in braving our northern winters compensate in some degree for the oddity of his notions and the uncouthness of his voice. Besides he has the reputation of a notorious thief, varying his luxurious diet with the season, visiting the cornfield at one time for worms, at another for its golden grain, or pulling from the orchard, now a cherry and now a caterpillar; nor forgetful of the delicacy of a fresh laid egg wherever his eye can discover the momentary desertion of some smaller bird's nest. With all his faults, we love to observe him in winter or in summer, thus adding his mite by his manners and mode of life, to the interest of the season. And there too is his cousin, the crow, of equally honest character, but whose reputation has sadly suffered in the estimation of the world, despite his services in ridding the farmer of not a few of his grubs, worms and insects. Nor can we possibly neglect, though noticed a hundred times before, the agile black capped titmice, coming in merry troops of six or seven through the woods, and gathering mid storm and sunshine a bountiful meal, regardless of care and sorrow. And last, we must stop to look at those half dozen birds, feeding sometimes on the seed of the fir, sometimes on the snow and generally together. Familiar in their habits, you may perchance receive a visit from them nearer home, picking up the crumbs from your doorstep or gleaning around the barn for scattered grain. They have come from some more artic clime to the comparative milder temperature of our own and will return on approach of spring to enter on the important cares of nidification. Let us cautiously approach to get a nearer view of the rich crimson livery of that adult male, varied with spots of black and having a bar of the purest white on each wing, the latter and elegant character not perceptible

in most of the others, which are younger; nor neglect the more modest and plainer dress of the female. Perhaps they compose a family circle, travelling in company for united pleasure and profit; blending the sterner wants of subsistence with the envied occupation of travel. I see by their peculiar physiognomy, that they are the Grosbeaks, and bear in specific distinction, the imposing title of Loxia enucleator.

And now, kind reader! it is time to think of parting company. We have taken a glimpse of the interest of a winter's excursion in a region of snow and cold. Before we separate let us bid farewell to those snowy peaks rising so majestically on the horizon. From our present position we may take in at one view their entire range from the pyramidal summit of Mount Adams on the left to the Notch on the right. Summer with verdant foliage, and Autumn in its varied, unnumbered dyes may combine to render them enchanting to the traveller in quest of scenery and pleasure, but we will agree that winter with all its rigors can boast of adding to them a majesty and grandeur not inconsistent with their sterile summits and bare precipitous heights. And reader! should we meet again, it may be to gather at a more advanced season, perchance in other fields and among other hills, the earliest anemone, or the latest, lingering blossom of autumn, to listen to the merrier song of feathered minstrels and to gaze on the mysterious changes of nature.

Lancaster, N. H., Feb. 1838. J. L. R.

Art. IV. — *Front Yards — Shrubbery — Flowers.*

While the farmers are vigorously preparing to engage in the important and busy operations of spring, they should not neglect those employments of the *taste* that contribute so much to the beauty, pleasure and comfort of a country residence. Don't suppose from the caption of this article, that we are going to advocate an inutile, unproductive expenditure of time and labor; for if you do, we shall address ourselves to your wives and daughters—God bless them. We hold it the duty of every good farmer to render his *home* as happy and agreeable as possible; to combine the solid comforts of life, with the elegant pleasures of taste. We do not urge the sacrifice of

substantial enjoyments to those of the taste or fancy—we would secure both; and he who is most successful in obtaining the one, is most likely to secure the other. Let every farmer, therefore, appropriate a liberal allowance of ground for a front-yard to his house.—It should be expansive enough to permit the execution of a regular design, in laying out the lines for walks, groves, rows of trees, shrubbery and flowers. It should be handsomely graded, sloping downwards from the house, in front and on each hand. Set it in blue grass, and of course enclose it by a neat, substantial paling or fence, painted white. In the selection of the trees, shrubbery and flowers, consult the taste of your "better half;" and don't spare any expense she may require, in order to gratify her taste. If she even fancies exotics, send abroad for them, though we should like to see our native botany more appreciated; for be assured, every tree, shrub or flower, will give you and your family a joy and gladness more exquisite than any derivable from the sordid enjoyments of wealth. A taste for trees and plants and flowers, is the love an enlightened mind and a tender heart pays to nature; it is a peculiar attribute of woman, exhibiting the gentleness and purity of her sex; and every husband should encourage it; for his wife and daughters will prove wiser and happier and better, by its cultivation. Who does not venerate and love some tree, or rose or honeysuckle, planted, it may be, by the hand of some absent or departed mother, or sister, or brother? and who would not protect them with a holy reverence, as mementoes of a hallowed love as well as contributors to the gratification of an elegant taste? The writer remembers well, the vine planted by his mother's own hand, when he was a little child. Its tendrils now cling to the topmost branches of a tall tree, in the front yard; and he never revisits the scene of his childhood, without gratifying some of the holiest emotions of his nature by sitting under its shelter, and recalling the earliest and happiest associations of his life. And there too, clinging about the columns of the porch, is the coral honeysuckle, shading the evening window, with its rich and delicate clusters of flowers; and at every footstep along the border, are the many-hued flowers, planted by a sister. And there also, along the line of the enclosure, are the rows of peach, pear, plum, apple, quince and ornamental trees, planted by his own hand, when but a boy. They now, like the writer, who planted them, have grown to maturity. Every year they pay the rich return

of delicious fruit, or beautiful and fragrant foliage and flowers; and every returning summer, as he pays the accustomed visit to the homestead of his youth, he enjoys a rational pleasure in the mere sight of them, infinitely greater than the gratification of the most fastidious palate. It is a great joy, to go to each tree, and, as it were, renew an acquaintance begun in the earlier years of our youth and rejoice in the full strength of manhood—'tis the very poetry of a gentle and gladsome and nature-loving heart. And these are modes of enjoyment, which every one should provide for himself, and for those who are to come after him.

We have deemed such an article as this, necessary to many o f our Kentucky farmers. There are too many of them who sacrifice to a supposed utility, all the enjoyments of which we have spoken. We have known some plough almost up to the walls on all sides of the house, which seemed to have been taken from some other place, and set down in the midst of a corn field. Such a taste is extremely vulgar.

We have but two or three suggestions further on the subject, leaving to the taste of the farmer, the plan of the improvement we desire all to adopt. The row of trees next the hedge fence, should be large forest trees, such as the black locust or elm. The passage from the front to the road, should either be through a woodland pasture, or a grass lawn, neither of which should ever be devoted to the plough. Be content with the pleasure and the pasturage afforded by such land—they are profits enough. The woodland pastures of Kentucky, are doubtless more beautiful than the classic groves of Arcadia. Where there is but a lawn in front of the house, the farmer should plant an avenue of trees. For this purpose, we recommend the elm; but the utilitarian will prefer the locust, a handsome ornamental tree, indeed, and producing a most valuable timber.—But who is the Goth, that would think of felling the trees of an ornamental avenue for their *timber?*—none but one thrice steeped in barbarism. The elm is the finest ornamental tree of our forest. Its venerable trunk, its graceful boughs, its early, rich and beautiful foliage, and its entire freedom from the least appearance of stiffness, should render it the classic favor of the woods. It is surprising, that it is not more prized as an ornamental tree.

We will add but one remark more, fearing our readers may deem the length of his article, an encroachment upon more important top-

ics. Never permit the suggestions of a momentary cupidity, to induce you to graze your front-yard. The grass may look luxurious and tempting; and it may seem "*a sin*" to lose it; but better to mow or shear your yard than to graze it. A cow or horse will, in one hour, destroy the growth of years. Nothing is more provoking, to the man of taste, than to see the trees he has planted, the vines and flowers he has nurtured for years, destroyed as *fodder for beasts*. O, 'tis horribly vulgar.—*Franklin Farmer*.

Art. V. — *The Double Yellow Rose.* (*Rosa Sulphurea.*)

The origin of this very old and beautiful rose, like that of the moss rose, seems lost in obscurity. In the botanical catalogues, it is made a species, said to be a native of the Levant — introduced to our gardens in 1629, — and never to have been seen in a wild state bearing single flowers. It is passing strange that this double rose should have been always considered a species. Nature has never yet given us a double flowering species to raise single flowering varieties from; but exactly the reverse. We are compelled, therefore, to consider the parent of this rose to be a species bearing single flowers. If this single flowering species was a native of the Levant, our botanists, ere now, would have discoved its habitats. I cannot help, therefore, suggesting, that to the gardens of the east of Europe we must look for the origin of this rose; and to the Single Yellow Austrian Briar — Rosa lutea, — as its parent; though that, in a state of nature, seldom if ever bears seed, yet, as I have proved, it will if its flowers are fertilized. I do not suppose that the gardeners of the East, knew of this, now common, operation; but it probably was done by some accidental juxta-position, and thus, by mere chance, one of the most remarkable and beautiful of roses was originated. From its foliage having acquired a glaucous pubescence, and its shoots a greenish yellow tinge, in those respects much unlike the Austrian briar, I have sometimes been inclined to impute its origin to that rose, fertilized with a double or semi-double variety of the damask rose, for that is also an eastern plant.

As yet, we have but two roses in this division; the double yellow, or "yellow provence," with large globular and very double bright yellow flowers, and the pompone jaune, or dwarf double yellow, both excessively shy of producing full-blown flowers, though they grow in any moderately good soil with great luxuriance, and show an abundance of flower-buds; but some "worm i' the bud" generally causes them to fall off prematurely. To remedy this, various situations have been recommended; some have said, plant it against a south wall; others, give it a northern aspect, under the drip of some water-trough, as it requires a wet situation. All this is quackery and nonsense. The yellow province rose is a native of a warm climate, and therefore requires a warm situation, a free airy exposure, and rich soil.

At Burleigh, the seat of the Marquis of Exeter, the effect of situation on this rose is forcibly shown. A very old plant is growing against the southern wall of the mansion, in a confined situation, its roots cramped by a stone pavement; it is weakly, and never shows a flower-bud. In the entrance court is another plant, growing in front of a low parapet wall, in a good loamy soil and free airy exposure. This is in a state of the greatest luxuriance, and blooms in fine perfection nearly every season.

Mr Mackintosh, the gardener, who kindly pointed out these plants to me, thought the latter a distinct and superior variety, as it was brought from France by a French cook, a few years since; but it is certainly nothing but the genuine old double yellow rose.

In unfavorable soils it will often flourish, and bloom freely, if budded on the musk rose, the common china rose, or the blush boursalt; but the following pretty method of culture, I beg to suggest, though I must confess I have not yet tried it. Bud or graft on some short stems of the dog rose; in the autumn, pot some of the strongest plants, and, late in spring, force them with a gentle heat, giving plenty of air. By this method the dry and warm climate of Florence and Genoa may, perhaps, be partially imitated; for there it blooms in such profusion, that large quantities of its magnificent flowers are daily sold in the markets during the rose season.—*The Rose Amateur's Guide.*

Art. VI. — *Culture of Fruit Trees.*

THE APPLE.

When Apple trees for transplanting are to be raised, the stocks should always be from seed, and not from suckers, as the latter commonly furnish badly shaped roots; and as those varieties which produce suckers in greatest abundance are chosen, they are apt to be troublesome from this cause.

The transplanting of apple trees is generally performed with far too little care; though their hardiness is such as to enable them to endure bad management, the thriftiness resulting from good treatment far more than compensates for all additional labor. The mode of proper transplanting has been described in a former number.— Where the quantity of land is small, such care is especially necessary.

It is now satisfactorily determined that apples are a most profitable crop for feeding domestic animals; hence larger orchards than have heretofore been raised, are becoming desirable. In many parts of the country, portions of farms, otherwise comparatively useless, may be thus occupied to advantage. Such as the sides of steep hills, and ground inconveniently encumbered with large stones.— Large orchares on good land will occupy less land if placed in the hexagonal form, thus :

For several years after young trees are transplanted, the ground should be constantly cultivated. This is easily performed, so long as the trees remain small. When they become large, an occasional cultivation, with intervening crops of grass, may be sufficient for large orchards.

It is too common a practice to neglect almost totally, not only the cultivation of orchards, but *pruning*. Irregular and stunted trees, and small and inferior fruit, are the consequence. This may be prevented by moderate, frequent and judicious pruning, if the trees are not already very old. The object is to prevent too thick a growth, to increase the vigor of the branches, and to admit light and air.—

The straightest and most thrifty branches should be left, the distance asunder being as nearly equal as possible, and so as to form a well shaped top. The branches should be cut closely in pruning, but not so much so as to occasion too broad a wound. If the wounds thus caused, are an inch or more in diameter, they should be protected by a coat of thick paint, or of a mixture of brick-dust or whiting with warm tar. This prevents cracking, admission of moisture, and the consequent rotting of the branches. Pruning should never be done in spring, when the sap is flowing, but may be performed either in winter or in summer. A sharp saw is the best tool for removing large limbs.

There are many orchards of ungrafted and comparatively worthless fruit, which might be greatly improved by changing the tops to good varieties. This is commonly done by grafting into limbs two or three inches in diameter; but this is more difficult to perform, and the young shoots are much more liable to be broken off by the wind, than when grafted into small branches. A sufficient number of young and thrifty shoots may be obtained in one season for grafting on, by cutting off a few of the most central and larger limbs, when fresh ones will spring up vigorously in their place. As the grafted branches increase in size, the old ones are to be gradually removed.

It would be difficult, even for one extensively acquainted with the best varieties of the apple, to give a complete selected list; the difficulty is increased by the great uncertainty of names among cultivators, and the multiplicity of names for the same fruit in different places. Lindley says,

"In apples, a greater confusion exists in this respect, than in any other description of fruit. This arises not so much from the great number of varieties grown, as from the number of growers, some of whom seek to profit by their crops alone, regarding but little their nomenclature. Nurserymen, who are more anxious to grow a large stock for sale, than to be careful as to its character, are led into error by taking it for granted that the name of the fruit they propagate is the correct one, and no other; hence arises the frequency of so many fruits being sold under wrong names. Gardeners, who purchase trees, become deceived by this procedure, and do not discover the error, unless they have been imposed upon by the substitutive of something *worthless*, and obviously at variance with the

character of the fruit sold them. This is a serious evil, to say nothing of the disappointment of the purchaser; for unless the mistake be detected at first, the longer the tree grows before it is discovered, the more time will have been lost by its cultivation; and, be it remembered, this time is irrecoverable."

It is care alone, that can correct this evil; nurserymen should propagate a smaller number of varieties, that they may the more successfully attend to the examination of the fruit to prove their genuineness,—because it is much better to cultivate a few select kinds, than a larger number of inferior quality, or whose names are involved in uncertainty. Purchasers must be careful to obtain them from those sources most to be depended on; or if they raise their own trees, they should, if possible, obtain their grafts from trees whose genuineness has been proved by actual bearing.

In giving a short list of apples, it is to be remembered that there are a great many good varieties, and that many must therefore be omitted; and to some, such a list may seem badly selected, chiefly in consequence of the many inferior varieties which are called by the name of some excellent variety. The following list may assist the cultivator in selecting good varieties:

Summer Fruit.

Early Red Juneating,
Early Harvest,
Early Sweet Bough,
Summer Rose,
Summer Pearmain,
Sine Qua Non,
Woolman's Early,
Buffington's Early.

Autumn Fruit.

Strawberry Apple,
Maiden's Blush,
Sapson,
Summer Queen,
Rambo,
Autumnal Swaar,
Gravenstein,
Stroat,
Fall Pippin,
Alexander.

Winter Fruit.

Bellflower,
Swaar,
Esopus Spitzenburg,
Ortley,
Hubbardston Nonsuch,
Baldwin,
Rhode Island Greening,
Ribston Pippin,
Newton Pippin,
Roxbury Russet,
Tallman Sweeting.

All of the preceding list, are, in a greater or less degree, suitable for table fruit, and some of them are also peculiarly adapted to culinary purposes. As the day for the manufacture of cider is passing away, and a far more profitable use may be made of apples in feeding domestic animals, no varieties expressly for cider are given in the list.

To those who have but small gardens, the following are more particularly recommended :

Early Harvest,	Maiden's Blush,
Bough,	Fall Pippin,
Sine Qua Non,	Swaar, Baldwin,
Buffington's Early,	Spitzenburg,
Strawberry Apple,	Newton Pippin,
Autumnal Swaar,	Hubbardston Nonsuch.

The following European varieties are highly recommended, but should not be extensively propagated until their adaptation to the climate of this country is satisfactorily ascertained, because many fruits of first rate excellence in one country, prove of little value in others. We are assured that many of the first American peaches, in England proved worthless; and on the other hand, many northern fruits are found greatly to depreciate in warmer climates,—the *White Astracan* apple, for instance, which is described as a most excellent fruit in Russia, is pronounced at mediocrity at Paris, and in this country is of little value. The writer has observed that some English varieties recommended as first rate, are in this country much inferior to our best fruits.

Summer Fruit.	*Winter Fruit.*
Margaret,	Old Nonpareil,
Spring Grove Codlin,	Royal Pearmain,
Summer Golden Pippin.	Hubbard's Pearmain,
	Barcelona Pearmain,
Autumnal Fruit.	Golden Harvey,
Early Nonpareil,	Golden Reinette,
Keswick Codlin,	Dutch Mignonne,
King of the Pippins,	Court of Wick,
Golden Pippin,	Cornish Aromatic.
Pine Apple Russet.	

The uses of apples are becoming yearly better understood, and their value constantly increasing to the farmer. It is now satisfactorily proved that they are not only excellent for fattening hogs, but are also equally so for feeding milch cows during winter. Horses may also be advantageously fed on *sweet* apples. For cows and hogs, the difference between sweet and sour apples is found to be far less than has been generally supposed. A moderate estimate of the expense of one acre of orchard, (remembering that the ground may be cultivated with crops while the orchard is young) will show the cost at from three to six cents per bushel; their value for feeding hogs has been proved to be much greater than the same quantity of potatoes.

The Diseases and Enemies to which the apple tree is subject, are generally not formidable. It has, however, sometimes serious ones to contend with. Among the chief are, 1. The Caterpillar. 2. The Borer. 3. The Canker. 4. The American Blight. 5. The Canker Worm.

1. *The Caterpillar.*—This has hitherto been the most formidable evil the apple has had to contend with in Western New York, and in fact the only one of any considerable extent. There are several species; but the only one which proves seriously injurious, appears in the spring as soon as the leaf buds begin to open, at which time it is not the tenth of an inch long, nor so large as a cambric needle; it increases constantly in size for a few weeks, till it is two inches long and a quarter of an inch in diameter. It then spins a cocoon and passes to the pupa state. In the latter part of summer, it changes to a brown miller, and deposits its eggs in cylindrical rings of several hundred each, round the smaller branches. Every ring of eggs destroyed in fall or winter, which may be easily done by simply cutting off the small shoots which contain them, and burning them, will prevent a nest of caterpillars next season. If left till they hatch, they are easily killed when they first appear, by a caustic or poisonous solution, as of lime, ley, or of tobacco, applied to them with a cylindrical brush on a pole. The later the operation is deferred, their increased size renders the work more difficult.

2. *The Borer.*—This is an insect which enters and perforates the wood of the tree at or a little below the surface of the earth. In this section of country, they rarely become troublesome to the apple tree. They may be taken out and destroyed by introducing into the hole they have made, a flexible, barbed wire.

3. *The Canker.*—This is sometimes termed *bitter rot.* It is ascribed to various causes. By some it is considered as arising from neglected culture,—poorness or wetness of soil,—or exposed situation. But the most probable, or the *immediate* cause, appears to be injudicious pruning, and bruises. Decay generally commences at the wounds thus caused, and extends till the tree dies. To prevent this evil, never prune in spring while the sap is in active motion, and protect all wounds of any considerable size from air and moisture, by a coat of paint, or of tar and brick dust. The only way to cure trees already diseased, is to cut away all affected parts, and apply a suitable covering to the wound.

4. *The American Blight*, (so called) is caused by the *Aphis lanata*, a small insect so thickly covered with fine white hair as to appear enveloped in cotton. It is furnished with a small bristle-like beak, with which it perforates the bark of the branches. Excrescences rise, the limb grows sickly, and perishes. Branch after branch is assailed in turn, and the whole tree ultimately dies. It is easily destroyed on young trees, and older ones if recently attacked, by brushing over the affected parts a mixture of equal parts of fish oil and rosin melted together and applied warm. The operation should be performed as early in the season as possible, or when the insect is first perceived. In England, many trees have been greatly injured, and some destroyed by it. Although introduced into nurseries in this country, it has hitherto been but little troublesome, and if carefully watched, will probably remain so.

5. *The Canker Worm* where it has appeared, is perhaps the most destructive to apple trees of any insect in America, but it has hitherto been confined in its ravages to certain parts only of the country, particularly of New England. Its habits are thus described by Kenrick :

" The canker worm, after it has finished its work of destruction in spring, descends to the earth, which it enters to the depth of from one to five inches. After the first frosts of October, or from the 15th or 20th, those nearest the surface begin to rise, transformed to grubs or millers. They usually rise in the night, and invariably direct their course to the tree, which they ascend, and deposit their eggs on the branches, which are hatched in April or May. They frequently rise during moderate weather in winter, when the ground is not frozen, and in March, and till towards the end of May. When the ground in spring has been bound by a long continuance of frost, and a thaw suddenly takes place, they are said sometimes to ascend in incredible numbers."

They destroy all the leaves of the tree, and thus eventually cause its death. The only effectual remedy yet devised, is commonly done by tarring. A circular portion of the bark is scraped smooth, and the crevices filled with clay or mortar ; a strip of canvass, and a large tow cord to prevent the tar running down, are then bound round the tree, and tar applied. The operation must be performed daily, a little before sunset, throughout the season the insect continues to ascend.—*Genesee Farmer.*

ART. VII.—*The Natural History of the Truffle.* Translated from the German for Loudon's Gardener's Magazine.

Classification. — Two esteemed botanists (Braune in his preface to the third part of the *Flora of Salzburg*, and Borkhausen in his *Botany*, § 3. and 412.,) in their subtleties, have denominated mushrooms the spectres of the inanimate vegetable kingdom; and the immortal Linnæus, in his *Regnum vegetabile*, still more unaptly calls them vagrants and barbarians, a thievish race, voracious creatures, &c. He, who in a capricious fit chooses to give an equally suitable appellation to truffles, may call them the gnomes of the immaterial vegetable kingdom; for they are only a kind of mushroom which grows under the surface of the earth, and are for the greater part of their existence externally invisible, being observable only for a short period, and by certain favored animals, after which they speedily undergo dissolution.

By some botanists, mushrooms or fungi are assigned to an intermediate kingdom; by a very few they are referred to the animal kingdom; but by most they are retained in the vegetable kingdom. That they are not properly organized plants is correct, for they want most of the characteristics of plants. No distinct organs of generation, no decided seeds, have as yet been observed in them, and no one has, as yet, succeeded in methodically increasing them by artificicial cultivation, on the same principle as other vegetables, with the exception of the garden mushroom. Truffles are usually developed where vegetable life ceases, and where the first step of the decomposition of vegetable matter has commenced under the requisite degree of moisture, warmth, and light.

The counsellor of regency, Medicus of Mannheim, lately deceased, a very excellent botanist, in his theory upon the formation of truffles, which has great merit, calls them educts, not products, of the vegetable kingdom, and endeavors by the idea of a vegetable crystallization, to present to the senses the manner of their coming into existence, in which they assume determinate forms, from which they never vary. Other vegetable physiologists brought the former seed theory upon the tapis, and endeavored to place it beyond a doubt, that fungi are simple plants, with most simple imperceptible organs of generation. (See F. C. Medicus, *Pflanzen-phusiologi-*

sche Abhandlungen, 3tes bändchen; Leipzig, Gräf, 1803; Borkhausen's *Botanical Dictionary* (Borkhausen's *Wörtbuche*, Giessen, 1797, 2ter theil, seite 210.;) and Funke's *Lexicon of Natural History*: in which works are found, at length, the different opinions of their authors on the formation of fungi.) In the eleventh edition of the *Systema Planturum* of Linnæus, truffles are arranged in the class of plants with invisible organs of fructification, and their place is there assigned in the genus of dust or globular fungi (Lycopérdon;) in the family of subterraneous globular fungi (Lycopérdon subterràneum,) which comprehends three species, the name Lycoperdon Tùber being given to them.

Later botanists have established a new genus, viz. Tùber, comprehending four species, and have called the edible truffle Tùber gulosorum. The French call them truffes; and the Italians, tartufi.

We shall distinguish and describe two kinds which are found in the neighborhood of the Rhine, although our principal object is the black edible truffle.

Description of Truffles. — The edible truffle is, as has been already mentioned, a globular fungus. When ripe, it is covered with a black, or often a dark brown, nearly regularly shaped (generally having six sides,) chapped, hard, and rough rind or shell, which has nearly the appearance of a fir cone before it opens. Later botanists in their description of this rind are often indistinct, and call it merely wrinkled. Geoffroy the younger, as early as the year 1711, in his treatise entitled *Observations sur la Végétation des Truffes*, very correctly observes its regular form saying: "*Les Truffes sont couvertes d'une espéce de croûte dure, chagrinee, et gercee à superfice avec quelque sorte de regularite telle à peu près qu'on l'apperçoit dans la noix de cyprès.*" No fibre, no small root is to be seen on this rind, and when the truffle is carefully dug out, it generally leaves the form of its rind behind it, just as if it had been pressed against the clay or loam, for the purpose of making an impression. Its shape is sometimes globular, or of a longish round or oval, but sometimes like that of a kidney, and it has on the surface an appearance like tuberous plants, sometimes having protuberances and sometimes depressions. The truffle, when cut, shows a difference in it texture and color. It is generally of a netted, cellular, veiny consistence. It is often watered, of a dirty

white, sometimes flesh-colored, or clouded with grey; but most generally, and especially in the vicinity of the Rhine, marbled of a dark or light brown, and when this is the case, is always strongly veined with white, or mottled like the nutmeg. This difference of color depends upon the earth in which the truffle is produced, upon its situation, upon the place in which it is found, and also upon its age; for all our brownish ripe truffles are, till they are nearly ripe, more or less of a whitish color.

In the veiny consistence of truffles are many cavities, filled with vegetable mucus, in which are contained several dark points. These, some take for seeds, and some for the embryos of other truffles that have received their form, and, increasing in size, grow after the dissolution of their parent.

The flesh of truffles is solid, partly juicy, and partly dry like the kernel of many fruits of trees; for instance, like that of the oak, hazel, &c. It is either mealy or soapy to the touch; and, when raw, has a somewhat sweet, but peculiar taste. Before it is ripe, the truffle has no other smell than that of the mouldiness of fertile earth, or decayed vegetables; and in that state, therefore, is not easily perceived, and found by animals that have a delicate sense of smelling; but as it approaches to ripeness, it attains the truffle smell so agreeable to epicures, which, at first is fragrant, and often like musk; as it is nearer being ripe, it becomes sharper and more urinous; and when too ripe, or going back, and putrescence or insects have begun to make their attacks upon it, is disagreeable, and nearly resembles the smell of a cow house. There are also truffles in many places, which diffuse a strong smell of garlic, many of which are found in a small district of the Weingartner Forest. In husbandry, in trade, and by some botanists, they are, according to their color, smell and taste, considered as different species; but most botanists look upon these kinds only as varieties. There is as yet much obscurity in the mode of ascertaining the different species of fungi. Many species, even of truffles, may incontestably be discovered, with respect to which, regard, in my opinion, should not be had to one peculiarity alone, but to several taken together, and especially to the place where they are found, to the soil, and to their being produced at one and the same time, in one and the same spot. In a ripe state, truffles are observed by divers animals, even when deep in the earth, and found, as we shall learn, by certain species of them.

There are ripe truffles, from the size of a bean to that of a large fist, and from a pound to a pound and a half in weight. Heavier ones were unknown to Geoffroy. I have never seen heavier ones found, and I do not believe that there are truffles, as some maintain of from twelve to fourteen pounds weight.

Here and there ripe truffles are indeed met with the whole year through; but the most of them ripen from the middle of August, especially when rains fall about that time, till late in autumn, when frosts come on.

The Swine Truffle, which, in this neighborhood (Carlesruhe,) grows along with the black edible truffle, is, in its external color, its shape, and particularly in its smell, essentially different from the common edible truffle. By some botanists, however, it is esteemed to be the same in a young state, and by others is said to be a variety. It has a leathery, thin, yellowish red rind or skin, covered with small dark warts. Its juicy flesh is, for the most part of the color and consistence of that of the edible truffle. It is, nevertheless, very often more coarsely marbled. Its taste, when raw, is not equal to that of the edible truffle, and its smell is unpleasantly sour, nearly approaching to that of the swine, from which it derives its name. Many writers, following each other, enumerate the longish round truffles, amongst swine truffles, and reject the use of them. I have, however, found this quite incorrect. The external form is very various in truffles, and cannot alone afford any characteristic.

When ripe it usually attains the size of a bean, or that of a small walnut, but sometimes that of a hen's egg. On account of its disagreeable taste and smell, it is not eaten; and therefore when it is abundantly met with, it is by no means welcome to the truffle hunter, but is immediately thrown away. My own observations have sufficiently informed me that it belongs to a peculiar species, and that therefore it properly ought to be called Tùber, or Lycoperdon, suile.

Origin and habitat of Truffles. — The circumstances under which truffles are produced, viz., their growth, and the place where they are found, particularly deserve the attention of truffle hunters and foresters; in order that they may be able to calculate, from what wood districts, by means of obtaining these astonishing productions, an accessory advantage may be procured. They are met with in mould formed from decayed vegetables, or in the upper stratum of

earth which consists chiefly of vegetable soil, in ploughed land, and especially in a sand which is mixed with vegetable mould. A proper degree of shade seems to be essentially requisite to their production, and they are generally met with in thinly planted forests, in which rain and warmth can easily operate upon the ground, as also where there are small groups of trees. They are principally found in thinly planted oak woods, which have either no underwood, or at the most, only thorn bushes that are quite stunted, or other single bushes. They are also found in thinly planted pole woods of different kinds of trees, of from forty to sixty years growth, which contain timber trees of oak and beach; thirdly, also in districts which are covered with pollards of hornbeam, elms, maples, &c., along with which there are a few bushes. They are always most abundant under oak trees, as it has been long ago observed. They there generally lie near to the stem, amongst the roots, but sometimes at a distance from them. They grow in the woods near the Rhine, and almost as numerously under the roots of the white-thorn (Cratægus Oxyacántha,) which shoots up with difficulty in thinly planted woods and pollard districts, as under the oak. Single ones are also found at the roots of other trees, and even at a distance from all roots, under thin and not matted grass and similar plants. That they are never found under apple, pear, and nut trees, that where a truffle lies no grass or herbaceous plant will grow, and that this is caused by the exhalation of the truffle, as some maintain, is incorrect, and contrary to experience. I have often been an eye-witness that truffles have been dug out from under pear and apple trees, as also out of tufts of grass, and soil covered with grass seeds.

In shady, moist, and fertile soil, truffles grow larger, and lie nearer the surface, than in dry and barren places, that are not shaded. In the first, they often rise with one half above the earth, so as to be exposed to sight; or they lie one inch or at most two inches deep, and grow to the largest size that truffles ever attain. In the last situations, however, they are often dug out from the depth of six inches and only as large as a hazel nut. But it is not merely by the truffles rising above the surface of the earth, and appearing to the sight, that they are discovered, there are other indications that betray their hidden existence. In districts where truffles of the sort described grow, the earth in certain places is frequently arched up in the form of a hemisphere, having cracks or clefts in it: one or

more truffles are usually the cause of this. An insect which pierces truffles and deposits its eggs in them, a species of fly in considerable numbers, often continues where truffles lie hid, and is, as I have often observed, chased away by the search. Funke, in his *Lexicon of Art*, (*Kunst Lexicon*,) endeavors, though vainly, to deny this indication; which, indeed, is of no use where truffles are sought for by the aid of dogs.

Truffles are sometimes found singly, sometimes a good many together, in which latter case however, as may be easily supposed, they are of different sizes, and are never so perfect, as when only a single one is found, or a few are found together in a favorable situation. Weidenbach, the most experienced truffle-hunter in the neighborhood of Carlsruhe, found last autumn (1811,) in my presence, under the roots of a white-thorn, more than thirty truffles of different sizes, from that of a pigeon's egg, to that of a bean. This, as he assured me, was the only instance of his having found so many together. He had never before found more than from twenty to twentytwo together, in a practice of more than thirty years.

In Piedmont and upper Italy, truffles are said to be found in stubble-fields, vineyards, and meadows. Whether this be correct or not, I pretend not to determine. Notwithstanding many inquiries, I have never learnt that a truffle was ever found in Germany in an open space entirely devoid of trees.

Truffles are extended over the whole surface of the earth, and are natives as well of the cold north, as of temperate and hot climates. Linnæus found them in Lapland, and Kæmpfer in Japan, where also they are eaten as a delicacy. They are dug up in Africa, America, and in great abundance in many parts of Asia. They are found principally in the temperate countries of Europe, in England, Spain, and France, especially in the south of that country; in Italy, in Switzerland, and in the north and south of Germany. In the last country, they are abundant in the kingdom of Wurtemburg, and in the Grand Duchy of Baden, along the Rhine.

Propagation of Truffles.—Notwithstanding the numerous plans which have been formed, and the many experiments which have been made, to effect the propagation of truffles by art, none, to the best of my knowledge, have succeeded. Even in the neighborhood

of Carlsruhe, the experiments made by the late Margravine Caroline Louisa of Baden, the grandmother of the present most illustrious grand-duke, an excellent, ingenious, and learned lady, who was very much attached to natural history, were attended with no favorable result. Truffles were several times taken up uninjured, with the earth surrounding them, without their being displaced from it, and again planted in the same circumstances under which they had originated: but they always underwent dissolution; and no increase or renewal of them succeeded, which, however, must have taken place, if the truffles had contained either seeds or embryos. Bradley, Von Justi, Count Borch, and Bulliard, have in their writings, respectively, proposed plans for the propagation of truffles. They say that a soil should be made choice of for the purpose, which resembles as much as possible the soil in which truffles are produced; that it should be dug about two or three feet deep; furrows or trenches should then be drawn through it, into which pieces of earth should be put or sunk, in which many truffles have grown, or even single truffles may be stuck into it. Whether these plans have been already carried into execution, and have had a more fortunate result than the experiments which have been made in our country (Carlsruhe) is to me unknown; but, though I much doubt it, I am not inclined entirely to decide against the possibility of planting truffles artificially, since success has been attained in the cultivation of other fungi. Many requisites for the formation of truffles seem only to be covered with a thick veil, which futurity, and the exertions of diligent natural philosophers, will perhaps raise or remove.

The enemies of Truffles, and the remedies against those enemies. —Man does not alone seek after truffles, which he places on the tables of the rich; both wild and domestic swine are fond of this delicacy. In the woods of which these animals are natives, man may save himself the trouble of endeavoring to obtain truffles for his palate; as, in this instance, they do not share so fairly with us, as they did the acorns with our forefathers; they not only collect and root out the truffles in order to eat them, but by turning over the soil, they prevent their formation.

The badger also, as well as the swine, is fond of truffles. The gamekeeper, seeing the soil broken, often says: "A badger has pricked, or has rooted, here." This expression, in places where

truffles are found, means, when translated from the hunter's language : " Here a badger has eaten a truffle." The red deer are remarkable for seeking and eating a peculiar kind of globular fungus or truffle, which is called the hart-truffle, *hart-rut truffle* (Tuber cervinum,) and they also consume edible truffles; the roebuck, as I have been assured, is also very fond of them. As domestic dogs are made use of in the search for truffles, and sometimes eat them very greedily, it is not to be doubted that the wild dog and the fox often dig for them. Squirrels, mice, and red wood snails (*Limax rufus*), I lately saw feeding upon this delicacy.

Besides these enemies, many insects lay their eggs in truffles, and dispose them to putrescence, or at any rate render them useless; because the larvæ which arise from these eggs pierce the truffles through and through, and impart to them a bitter taste. Geoffroy observed two kinds of flies which pierce the truffle, one blue or violet, the larvæ of which dwelt in the sound truffle, and a black one whose larvæ inhabit the decayed truffle. Morand, and Reaumur observed the larvæ of another fly, which is of a red brown color. Together with these flies, I discovered a beetle in truffles which pierce them in great numbers, making burrows through them, which it continues in the earth. It is a species bostrichus (Bostrichus *Fabr.* 5 *Dermestes Linn.*) and of the size of the beetle that destroys the bark of the firs (*Dermestes piniperda Linn.*) but is nevertheless of a lighter red-brown color, has no hair, and no indentations on the wing-coverts.

The Uses of Truffles. — Truffles are made use of as a food; but not being found every where, they are consequently rare and dear, and seldom appear except on the tables of the rich. They were known as a delicacy by the ancients, and were especially esteemed amongst the Romans, as a dainty and favorite dish. Dioscorides and Pliny make mention of them; the latter (*Hist. Mund.*, lib. xix. cap. 2), in particular, relates an extraordinary circumstance which happened at a Roman truffle feast. As Lartius Licinius, the Roman prætor at Carthagena in Spain, was eating a truffle, he bit a penny piece (denarius,) a Roman silver coin. Whence Pliny infers truffles arise from the accretion of matter deposited in the earth, which fact Geoffroy endeavors to disprove.

They are very nourishing, and are said to be strong stimulants. They are often eaten, peeled raw, thinly sliced, and then soaked in

wine, or only roasted in ashes. The art of cookery teaches us how to prepare them in many different ways, and to make them palatable; they are used as an addition and seasoning to meat pies, sauces, and ragouts, and a particular dish is made of them nearly alone. They are also used for stuffing turkeys, &c. In medicine they were formerly employed, when boiled, as a cataplasm for the quinsy; but now like many other medicines in that disorder are but little esteemed. Many physicians prohibit their being eaten, and ascribe colic, palsy, and other disorders to them. The classical Frank, in his *Medicinal Policy*, vol. iii. p. 309, also points out certain consequences as proceeding from their immoderate use.

In trade, truffles perform an inferior part, they are marinated, (salted, and afterwards preserved in oil and vinegar,) and sent principally from Aix, Avignon, Bordeaux, Perigord, Cette, and Nice, to all the principal towns of Europe, where they are served up at table even in winter. The merchants have different ways of preserving them. Some, after they are dug out, immediately wrap them, whilst fresh, in waxed paper, lay them into a glass from which the air is extracted, and set the glass in a larger vessel filled with water. Others merely dip them in oil or fat, by which means, the effect of the air, and in some degree, dryness, withering, and decay, are for a time prevented. In trade, truffles are distinguished by different names, which have relation partly to the place where they are found, as Perigord truffles; and partly to some peculiarity in themselves, as white truffles (bianchetti,) &c. They are sold in the neighborhood of Carlsruhe, and in other places where they are found, at two florins (about half a crown) per pound, and cost when sent to a distance, especially in winter, from six to ten florins (from 7*s.* 6*d.* to 12*s.* 6*d.*) per pound. In the arts, as far as I know, they are not used. In London, they sell at from 7*s.* to 16*s.* per pound.—(*To be continued.*)

Art. VIII. — *Progress of Horticulture in Boston.*

It is doubtful if there was ever a more beautiful display of plants and flowers in the different green-houses in the vicinity of Boston, than there has been the present season: particularly the Camellia, which has been flowered to a very great perfection, to which many new varieties have found their way into the collections of the con-

noisseurs. To this class of plants, we may add the Azalea and Erica, of which some of the finest specimens have been flowered in the different green-houses. The Azalea is a charming family of green-house plants, and will undoubtedly, ere long, become not only a great favorite which it is already, but find its way into every collection of the green-house and parlor plants, for certainly it is one of the finest hardy, shrubby, green-house plants we have; and it is probable, in time will be by culture run into endless varieties, as the camellia. The Erica too, is becoming more general, and it only requires to be well grown to become a general favorite. I hope so beautiful a tribe of plants will not be neglected; especially by the fair patrons of "Flora," on the supposition that it is impossible to cultivate it in rooms; no such fearful anticipations are needed, for I hope time will prove them altogether erroneous. The same idea prevailed some years since with the Camellia, which now can be cultivated by every lover of flowers, and I trust the same thing will be in a few years exemplified in the Erica. But before a satisfactory proof can be given of this hint, the method of growing the Erica to accommodate itself to rooms, must be a little altered in regard to season, namely: it must be so managed as to throw it into flowering a month later in rooms, when air can be given, and the time of duration of flowers will amply compensate those who purchase. I hope, too, that gardeners and cultivators of this pretty tribe of plants will impart everything relating to its culture, in order to give animation, by the success of those who commence the culture of the Erica. For let them remember, that sickly plants discourage the amateur, and healthy give a zest to their ambition. Before I quit my general observations, I cannot refrain from noticing the fine perfection of the several kinds of Rhododendrons that have flowered this season, particularly the Arborea and the Hybridium, which have surpassed anything of the kind ever seen in this vicinity.

In noticing the several places near Boston, I beg leave to name that of Wm Pratt, Esq, Oakley Place, Watertown, conducted by Mr Alexander McLennan, which ranks as one of the most compact establishments in the neighborhood. The mansion which is located on a fine eminence (and well protected from the cold quarter with a fine grove of trees) commands one of the finest landscapes in the country; as its residents can sit at ease, and look over a fine fertile valley, and view the bustle of the surrounding country,

and that mart of commerce, Boston, at a bird's eye view; the approaches which are of a fine easy nature, (and which have been much improved this fall, by Mr McLennan) are in perfect keeping with the fine scenery that the establishment commands. To its compact gardens are attached two glass-houses, and a frame yard; the one appropriated to a green-house in the winter, and a grapery in the summer, the other entirely as a grapery and for forcing early vegetables. The green-house is stocked with a choice collection of green-house plants, which have been in good keeping during the winter; and at this time exhibits a fine show of the Geranium or *Pelargonium* in flower, which is one of the richest treats of the season in the green-house. But the most interesting thing in the green-house at this time is a fine specimen of the *Westeria consequania* which is now in flower and covering a large space of the back trellis. This is perhaps the finest specimen ever flowered in these parts, and its long racemes of flowers, which are nearly a foot in length, bearing a dense cluster of fine light blue papilionaceous flowers, is truly beautiful.

In noticing J. P. Cushing, Esq. Belmont Place, it would be useless to call by name the many pretty things that have been in flower during the season. The show of Geraniums is now as at Mr Pratt's in a fine state, and it is certainly in good taste to flower the Geranium in private collections at an early season; when they follow their predecessors the Camellia and continue a good show to the spring. In the hot-house I noticed some fine specimens of the *Bletia Tankervilliæ* in fine perfection, and the succession Pine Apple plants promise to bear some fine fruit in the season. The *Pœony moutan* and *papaveracea* have been flowered in fine perfection in the conservatory; but the most attractive specimen at the present is a noble plant of the *Rhododendron arboreum* in flower, of from 15 feet or upwards in height, containing from 50 to 70 trusses of flowers, and indeed the whole concern is now, as it is always, a rich treat to those who have the pleasure of seeing it.

Dr Howard's, Brookline, a pretty establishment managed by Mr Irish in a neat and successful manner. The glass-house which serves the triple purpose as green-house, grapery, and for growing vegetables, is built with two side wings; and a semicircular centre, which serves as a staging for green-house plants; the front and one end for forcing radishes, sallads amd the like — and grapes are grown very successfully up the rafters; which are now breaking and showing fruit finely.

John Lemist, Esq., Roxbury.—This establishment has fully sustained its reputation this season, in cut flowers, particularly the Double White Camellia, which has been flowered in fine perfection by Mr Hutcheson; at this time the fine specimens of Erica and Azelias now in flower give a contrast with the other plants of a very pleasing character to the lovers of flowers.

Mr D. Murphy, Roxbury, has a good collection of green-house plants of the different kinds of Geraniums, China Roses, Stock-gilliflowers, Wallflower, &c., which are grown in a hardy manner for the purpose of rooms. The plants are in a thriving condition, and it is to be hoped that the lovers of flowers, as the season advances, will give Mr M. a call and encourage his object of cultivation.

M. P. Wilder, Roxbury.—His fine collection of plants has lately received an addition of many fine varieties of Camellias from diverent parts of Europe, some of which are fine specimens of trees five or six feet high ; several of these kinds are the most choice and are highly valuable. Indeed Mr Wilder seems to spare neither trouble nor expense to make his collection one of the most complete.

Tulbaghia cepacea, Willd: We were gratified in discovering among a collection of Cape of Good Hope bulbs, now growing in the green-house of W. W. Palfray of Salem, and introduced into our city collections by Mr John C. Lee, the above rare and curious plant, allied to the Hemerocallis, but still differing in many particulars. Though of no essential or striking beauty, yet from the symmetrical and fan form of its foliage and from its nodding bells of alliaceous scented flowers, it instantly strikes the attention of the botanical florist. Sepals six, green cowl, three parted, dull brown, with indistinct stamina, flowers pendent from a common bracte, root somewhat between a tuber and bulb. The genus was originally named in honor of Tulbaghia, a Dutch governor, at Cape Good Hope, and a patron of botany. Its cultivation seems easy, and is worthy the notice of lovers of rare plants. *

Spring has come with the blue bird and song sparrow; while the hardy snow-drop of England is now peeping from the ground swinging its carols in defiance of east wind and lingering winter which seem disposed to dispute its authority as the welcome harbinger of blander zephyrs and summer days. J. L. R.

March 26.

New Horticultural Books.

THE AMERICAN FLOWER GARDEN COMPANION. Adapted to the Northern States. BY EDWARD SAYERS, Landscape and Ornamental Gardener.

This is a beautiful book, just issued from the press, containing in a small compass ample instructions for the cultivation of flowers, and catalogues and directions for the selection of varieties suited to the meridian of New York and Massachusetts, and adapted with variations to other states. It is plain, full, and well arranged; and may be safely commended to the patronage of those who have a taste for what indeed is most beautiful in the Creator's works.

The pleasures of the eye are among the most varied, the most abundant, the most impressive, the most instructive of any of the senses; we had almost said of all the others combined; and throughout universal nature, in all its departments and productions, external beauty is every where present and predominant, that this sense might be cultivated and gratified; that the eye might be filled to the full.

The cultivation of a taste for the beautiful in creation, is laying a broad foundation for innocent pleasures and rural recreations; and multiplying the instruments and excitements to a grateful piety. This taste, then, should by every means be encouraged and improved; and it is impossible in this case that we should go too far. It is impossible for us to become too much in love with nature; with the beauty of the land, the ocean, the skies, the forests, the beasts, the birds, the insect world, the flowers; and the vast and ever changing procession of animal and vegetable life, as it passes before us.

We greet, therefore, with unaffected delight, every effort to cultivate and strengthen this taste, and to lead men away from the grovelling cares and wasting perplexities of common life, to study nature in her vast laboratory; and to mark the divine agency in her every operation, and admire and adore that beneficent prodigality of beauty, which is every where poured out around us.

We cannot forget the delight with which the last season we visited the splendid Tulip plantation of a distinguished cultivator in the vicinity of Boston. This man is a fool, says one, to spend his time and money in the cultivation of these paltry flowers! But he was a much greater fool who said it. We saw in it the truest wisdom. What a profusion and what an endless variety of beauty! What a wonderful organization; and what exquisite touches, and tints, and coloring, and shades! What skill, what wisdom, what beneficence illuminated this simple and narrow page of God's earliest revelation, and were here concentrated in a blaze of glory. What a source of innocent and delightful recreation to the cultivator; and what a benefaction to others in the pleasures which it imparted.

Away then with party politics, which madden men to frenzy; and embitter all the waters of life. Away with the miserable sophistries, and conceits, and arrogancies of controversial theology, which disturb the temper, and narrow the mind, and nourish pride and inflame resentment. Away with the wretched drudgery of a never-to-be-satisfied avarice, which extinguishes all generous and noble sentiments; and hardens the heart like stone. Learn to love the purer, the heart-enlarging, the heart-improving pleasures of nature; drink of the crystal waters of this exhaustless fountain; and worship your Creator in this,

his glorious temple; adore his goodness and perfection in the infinitely multiplied forms of beauty, which every where crowd upon the sight; in the snow-drop which first peeps above the ground to whisper to you that spring is coming; in the rose, the queen of flowers, that sits upon her mossy throne and sheds her fragrance upon your path; in the floating and golden clouds which draw their glowing folds around the retiring monarch of the day; and in the sparkling stars which watch with their eternal fires over your hours of repose — "See God in every thing and every thing in God."

THE BOOK OF FRUITS. Being a Descriptive Catalogue of the most valuable varieties of the Pear, Apple, Peach, Plum, and Cherry for New England culture. By ROBERT MANNING. To which is added the Gooseberry, Currant, Raspberry, Strawberry, and Grape, with modes of culture; also, Hardy Ornamental Trees and Shrubs. With plates. First series for 1838.

Mr Robert Manning of Salem, well known to the horticultural community, and distinguished for his skill and public spirit in the introduction and cultivation of fine fruits, has just published a work under the above title. It is well printed; the plates do credit to the engravers; and the information contained in the book is adapted to be highly useful. We regret that our limits will not admit of a more extended notice of the work at this time. We recommend to every man, delighting in a garden, and having a desire to cultivate fine fruit without risk in mistaking its character, and to understand the cultivation of a tree or vine, to obtain this book.

QUINCY MARKET.

[Reported for the Horticultural Register.]

APPLES, Russet,			barrel,	2	00	to	2	50	bushel,	1 00 1 50
Baldwins,			do.	2	00		2	50	do.	1 25 1 50
BEANS, White									do.	2 00 2 25
BEETS,									do.	50 75
CABBAGES,									dozen	50 75
CARROTS,									bushel	50 75
CELERY,									root	6 10
CRANBERRIES,									bushel,	2 00 2 25
GRAPES, Malaga,									pound	25 37
HORSE RADISH,									pound	8 11
LEMONS,									dozen	20 25
LETTUCE,									head	6 1-4
NUTS, Almonds, (Soft shelled)									pound	7 8
(Hard)									do	4 5
Filberts									do.	4 5
ORANGES,									dozen	37 50
ONIONS,					bunch,	4 a 6			bushel	1 50
PARSNIPS,									do.	75
PARSLEY,									half peck	25
POTATOES, common,			bushel,		40		50		barrel	1 00 1 25
Chenangoes,			do.		37½		50		do	1 25 1 50
Eastport,			do.	1	00				do.	2 00 2 25
RADISHES									bunch	6 1-4
SPINACH,									half peck	25
SQUASHES, various sorts,									pound	3 4
SAGE,									do	20 25
TURNIPS,									bushel	50 75

Boston, April 6, 1838.

THE

HORTICULTURAL REGISTER,

AND

GARDENER'S MAGAZINE.

MAY 1, 1838.

ART. I.—*Monographi of the Genus Camellia, or An Essay on its Culture, Description and Classification;* Illustrated by two synoptical tables; the first containing the names of two hundred and seventy varieties, with the color and form of the flowers, the species or variety which have produced them, the place of their origin, and the period of their introduction into Europe; and the second presents two ascending gamuts, in which are painted the shades of color peculiar to the known Camellias, with their specific denominations. By the *Abbé Berlèse*, member of several French and foreign Learned Societies. Translated from the French for the Horticultural Register, by HENRY A. S. DEARBORN.

TRANSLATOR'S PREFACE.

FOR an opportunity of reading the work of Abbe Berlese on the Camellia, I am indebted to Miss S. Gibbs of Boston, who has recently returned from Europe; and considering it the most interesting and valuable treatise, which has appeared on the characteristics and culture of that magnificent shrub, it has, at her suggestion been translated, for publication, in the monthly numbers of the Horticultural Register, in the full belief, that it would be very acceptable to that portion of my fellow citizens, who are engaged in the ornamental, as well as the useful departments of horticulture.

The highly respectable lady, who, on this occasion, has evinced such a commendable disposition, to extend the bounds of intelli-

gence and promote the happiness and prosperity of those, who participate in the various branches of rural industry, did not require, this additional illustration of her enlightened liberality and patriotic zeal, to foster and encourage a refined and exalted taste, for science, letters and the arts; but such renewed demonstrations of her well known beneficent and enlightened views, in relation to the best interests of her country, are as cheering, as they are honorable, and merit the grateful acknowledgments of every American.

Whoever returns from a foreign clime, and brings back a single rare, or valuable seed, plant, or specimen of the arts,—or increases the national fund of human knowledge, by the contribution of the smallest volume, is justly to be considered, as a public benefactor. It was such an interest for the advancement of their country, that induced the illustrious travellers of all ages, to introduce from every portion of the globe, whatever they discovered that was in any manner calculated to accelerate its progress, in the career of improvement. The histories of Greece and Rome are filled with the names of eminent men, who thus distinguished themselves; and all that has been achieved in the march of civilization, since that long and dark period, which succeeded the fall of the great empires of antiquity, is the result of the bold and adventurous spirit, and commanding genius, of a comparatively few individuals, who from age to age, have appeared, as the pioneers of intelligence, important discoveries and useful objects of enterprise.

Alexander directed, that the victors in the public games should be crowned with the leaves of the peach, in honor of Perseus, who first brought that fruit from Asia; Pliny has rendered the Consul Sextus Papinius forever memorable, by giving him the credit of acclimating the nectarine of Syria, during the reign of Augustus, while the names of Martius, Manilius and Appius are perpetuated, as practical cultivators of the soil, by being given to the celebrated pears and apples, which they introduced from distant regions; and the delicious figs of Carthage, were made known to the Romans, from being presented by Cato to the assembled Senators, to remind them, that they had not only an implacable but near enemy. The most meritorious trophies which Lucullus and Prince Potempkin gained, during their Mithridatic and Turkish campaigns, were the supurb varieties of the cherry, which they brought from the shores of the Euxine; and the agricultural work of Mago was deemed the

most precious of the spoils, which Scipio transported from the coast of Africa, on the triumphant conclusion of the last punic war.

The author, of the Monographi of the Camellia, pursued the only course, by which any branch of the sciences or arts can be brought to the highest state of perfection, or proficiency attained in any moral or physical pursuit. He made the Camellia, a special object of investigation and experiment, for a great number of years and thereby became so thoroughly acquainted with the character and habits of that plant, as to be eminently qualified to give the necessary information for its successful culture ; as well as furnishing a methodical mode of classing and naming the rapidly increasing varieties, from their form, color, and manner of growth.

The work appeared under the sanction of Chevalier Soalange Bodin, who from the high reputation he has justly acquired, in consequence of the vast extent of theoretical and practical knowledge he has evinced, in all the departments of horticulture; and the exalted positions he has long sustained, as proprietor of the celebrated garden of experiment at Fromont, and Secretary of the Royal Horticultural Society of Paris, is a conclusive testimonial, of the respectful consideration, in which the labors of the Abbe Berlese should be held.

Although it is but a few years, since the Camellia has been generally known and cultivated, in the United States, we can present several very splenid collections; and that of Colonel Wilder, in Dorchester, is surpassed by but few in Europe, both as to the variety and number, as he has over 1000 plants, which include 300 species and varieties.

HAWTHORN COTTAGE,
Roxbury April, 26, 1838.

PREFACE OF THE AUTHOR.

Being passionately fond of Botany, I have passed the most delightful moments of my life, in the study of flowers ; but was very much embarassed in making a selection of the kind, to which I should devote my special attention, from the immense series of the vegetable families, which presented their respective beauties to my admiration. At length, after great hesitation, I finally gave the preference to the genus of the Camellia ; and in fact, what species of plant is there, which better merits the enlightened and vigilant care of the horticulturist? The elegance of its form, the beautiful

verdure of its leaves, and the pure and brilliant color of its large and elegant flowers, sufficiently justify the choice I have made; especially, when not only a vast number of distinguished amateurs have imitated me in this adoption, but there is not a garden, in which this lovely plant has not found a place, and where it sparkles in the first rank of the vegetable population. Every civilized nation immediately adopted the Japanese adventurer, with emulous admiration, and now the Camellia has become a cosmopolite.

But, in consequence of the eagerness which every one has evinced to welcome this beautiful stranger into their conservatories, where it produced numerous varieties, rivalling each other in elegance and splendor, there has resulted a great confusion, which has consequently occasioned much difficulty in appreciating the obtained varieties, and rendered it very desirable to the cultivators, that a convenient mode of classification should be established, to guide them in this new Dædalus. And, how could it be otherwise, when the many different modes of multiplication are considered, which have been discovered by the science of horticulture,—a science, which has been carried to such a high degree of perfection in our day; and also, the facility with which this plant produces seeds, especially in the southern portions of Europe.

Thus, every where, the number of varieties have increased and consequently a confusion in the specific names; so that now the series present a perfect synonymical chaos, which is often left to the decision of the ignorant to reform, and we might say, even sometimes, to the malevolent.

To remedy, as far as possible the evils which have been designated, as well as to benefit all those, who admire and cultivate this lovely plant, which is the object of my constant predilection; and to guide them in their purchases and exchanges, and at the same time prevent them from being deceived, by intentional or involuntary errors, I have undertaken a labor which, it is not improbable, may be deemed above my powers; but I throw myself, with confidence, upon the liberality of all the true friends of horticulture; who will perceive, that in this attempt, to establish a nomenclator, feeble as it is, I have been constantly animated, by a desire to be useful.

My time having been devoted, for twenty years, to the special cultivation of the Camellia, I have obtained, at great expense and la-

bor, probably, the most numerous collection on this continent, although I have carefully excluded all inferior and doubtful varieties.

Having daily studied, with minute vigilance, the progress of nature, in this superb genus, I have made numerous interesting notes on its growth, florescence, fructification and culture; and having arranged them with the greatest possible care, they form the basis of this work, which is now confidently submitted to the amateurs of Flora; and if I shall be so fortunate, as to obtain their suffrages, my ambition will have been entirely gratified.

ADVERTISEMENT.

This work is divided into three distinct parts: the first contains a full account of the method of cultivating and multiplying the Camellia; the second, a description of the most elegant varieties, amounting to about two hundred and eighty,—each of which is annexed to a number that has reference to a corresponding one in the two synoptical tables.

For the purpose of being easily understood by all persons, who cultivate and admire the Camellia, a simple and uniform mode has been adopted, in the descriptions, based on the most striking characteristics of the plant,—as the size of the leaves, and the form and color of the buds and flowers. All the irregularities or resemblances, which the varieties present, as well as the synonyms are carefully designated, whenever it has been possible to do so, with certainty.

The buds have been divided, as follows, in conformity to the color of the colycinal scales—which also characterise the more or less facile development of the flowers.

1. Buds with green colycinal scales. Florescence easy.
2. " " yellowish " " Florescence less easy.
3. " " dark col'd " " Florescence uncertain or difficult.

The flowers have been divided into simple, semi-double, double, and full.

To prevent any doubt in the mind of the cultivator,—who may often be deceived, with respect to the preceding denominations, the definitions, are here given. By a simple flower is understood, such as have but one rank of Petals; although in some varieties the sexual organs occasionally change to the petalous state. Example, Camellia, *dicanthiflora, insignis*, &c. These latter are flowers, which certain gardeners erroneously call double.

Semi-double are those which have but two rows of petals, with occasionally petalous stamens.

Double flowers are those which have several ranks of petals intermixed, with fertile and apparent petalous stamens, in the centre.

Full flowers have the rows of petals so multiplied, that they have the form of the hundred leaf rose.

The asterisk denotes the distinct species which have been recognized, as such, by botanists; and they are eight in number.

MONOGRAPHI OF THE GENUS CAMELLIA.

CHAPTER FIRST.

Section 1. — *The Origin and Botanical Characteristics of the Camellia.*

The name of Camellia, first given, by Forskal, to *Ruellia grandiflora*, was immediately applied by Linnæus, to the beautiful shrub, which is the subject of this work.

Linnæus conferred upon it this name, as a testimony of gratitude to father Camelli, a Jesuit, who, in 1739, imported it from Japan, into Europe.

The following are the botanical characteristics of this plant.

Perianth double: calyx, formed by the union of imbricated, squamose, rounded, concave, coriaceous and caducous bractes; corolla, of from five to seven petals, — rarely nine, equal in number to the bractes, which they exceed much in size, alternating with them, and often united at the base by their claws; stamens numerous, hypogynous, disposed in the form of a crown, filaments filiform, polyadelphian, and sometimes monadelphian, at the base surrounded by ellipsoidal movable anthers; ovary one, oval; styles three to six, more or less connected; capsule trilocular, opening by three valves, trispermus; valve partitioned, debiscent, one triquetrous axis; seeds rare, fleshy, plump, attached to the interior coat of the petitions.

The Camellias are shrubs or trees, indigenous to China, Japan, Cochin China, and the Indies; they are glabrous, evergreen, and eminently remarkable for the beauty of their flowers.

This plant, heretofore placed near the orange, by M. De Jussieu, is now the type of a new family, formed by M. Candolle, the elder,

under the name of Camellias, which is composed of the genera camellia and thea; and which that learned naturalist places between the ternstræmia and olacinia, — adding, doubtfully, that if the new intermediate genera can be posterially united, the two first orders may form but one, for the reason that the Camellia only differs from the ternstræmia by the seed.

In its native country, the Camellia rises to the height of from forty to fifty feet; but in Europe, it rarely exceeds from twenty to twentyfive, and forms a shrub of the most superb appearance, whose persisting foliage, of a glossy green, and splendid flowers, place it, without contradiction, in the first rank, among the plants of our green-houses.

Its branches are numerous, alternate, diverging, reddish when young, but ash-colored and striated in their adult age; the leaves uniformly alternate, large, smooth, generally more or less convex, thick, coriaceous, of a beautiful deep and brilliant green, margins acutely, but not deeply dentated; the flowers, often from two to three inches in diameter, of a bright cherry-red, terminal, on rising from the axils of the leaves of the superior branches; they appear, in this climate, to gladden our sight, in November and March, when the frosts have desolated our gardens; this peculiarity, independently of the extreme beauty, so remarkable in this plant, has been sufficient to claim for it our preference; it may also be added, that if nature had not refused an agreeable aroma, it would be the sovereign of plants, to which no other could be compared, without disparagement.

It has not been considered proper to describe, as a botanist, the transformations which cultivation has produced, in the normal type, (*Camellia Japonica,*) by the attempts to obtain so many and such elegant varieties. There is no one who has paid any attention to horticulture, that is such an entire stranger to the science of botany, as not to be acquainted with those metamorphoses of the stamens and pistils, which constitute the semi-double, double, and full flowers, that are daily produced, in our gardens, among the families of the roses, dahlias and other choice plants.

Section 2. — *The Increase of the Varieties of the Camellia by Cultivation, and the Necessity of a Classification.*

The Camellia japonica, as has been stated, was introduced into Europe in 1739, and first ornamented the gardens of England;

soon after it passed into Italy, then into France, and at a much later period into Germany. This was the only species known in Europe for fortyseven years; it subsequently fructified in several countries, and furnished varieties which were long esteemed.

But in 1792, the beautiful varieties of the *White*, the *Variegated*, and *Double Red* appeared at the same time, when, of course, the admiration for the type, immediately diminished.

Since these three first varieties, Japan and China have furnished us with others, equally remarkable, such as the *Incarnata* in 1806, the *Myrtifoli* in 1808, the *Warrata* in 1809, and finally the *Pæoniæ flora*, and the *Pomponia* in 1810.

As several of these varieties, and especially, the three last have fructified in our own gardens, there have been obtained from their legitimate and adulterous unions, varieties and hybrids of the most interesting character. Time, culture and accident have, in their turn, induced these new products to give birth to others, which, without contradiction, equal in merit those which have been received directly from their native countries. This easy mode of reproduction, — by fructification, — having become general, and as the results are continually augmenting, enlightened cultivators are united in their fears, that in the future, the numerous varieties which are daily exposed in the flower market, will soon produce great confusion, and there will be invincible difficulties to direct their course in this floral labyrinth, if a clue is not found to guide them, by establishing an order of classification, which shall quadrate with the demands of horticulture, and the trade in these universally admired shrubs. This fear, in which we equally participate, has encouraged us, to publish our ideas on the subject, and to propose a method which every one can comprehend, and accomplish, so far as our feeble abilities will permit, the object which we have proposed, — that of being useful to horticulture.

For this purpose, we have adopted the most simple and natural mode, — that of dividing the Camellias into two classes, from their general color; viz. Camellia *unicolores*, and Camellia *bicolores*. The first class comprehends the simple colors which are more or less pure and deep; the second contains the mixed colors, more or less determinate and striking. The result of these views is contained in the annexed tables, where are explained, in an abridged manner, all these differences, besides the form, species, or variety of the Camellia, its origin, and introduction into Europe.

The more extensive details are contained in the monography* attached to this work; but to understand these tables, it is essential that they should here be preceded, by some information, as to the means we have employed for establishing the names of the different shades of color, which are generally exhibited in the flower of the Camellia.

Our first effort has been directed, to ascertain, what were the relations, which existed between the different shades of the artificial red color, with which different kinds of silk and woollen manufactures are dyed, and between the natural shades of the same red, which the flowers of the Camellia present, in order to apply the same denominations to the latter, which the artists have given to the former; but, notwithstanding our assiduous researches, to discover whether there was any resemblance between these two kinds of colors, we at last thought, that we should have recourse to the painter, who, alone, can seize and imitate the various tones of color, which are so richly displayed by nature; and this thought became a resolution, which was immediately carried into effect. A very able painter, surrounded by the natural samples, which our collection of Camellias abundantly furnished, was employed, at various times, to imitate these colors on paper, and to establish, in precise terms, the specific names of the coloring materials, which he employed, to compose each specimen, in the painted representations.

This labor having been accomplished, we considered it necessary that the result should be submitted to the examination of Mr Chevreul, one of the most distinguished men in France, — the director of the royal establishment of tapestry at Gobelins, and professor of chemistry in the Museum of Natural History. Mr Chevreul explained, in his peculiarly lucid and kind manner, all the ramifications of his system of colors, which has been ably developed in a scientific work, that the author will soon publish.

The examination of the system of Mr Chevreul, has been of infinite service to us, in simplifying our labor, and has induced us to divide our colors into two series, called *gamuts*, containing all the tones and shades, which distinguish the varieties of the Camellia.

We shall develop this attempt for the classification of the varieties of the Camellia, by their colors, after having described the modes of culture and multiplication.

* In the preceding pages, for "Monographi," read MONOGRAPHY.

CHAPTER SECOND.

SECTION 1.—*The Cultivation of the Camellia.*

The Camellia of Japan is, incontestably, one of the most beautiful conquests, which horticulture has achieved, during the last century. The magnificent form and appearance of this shrub, the rare elegance of its foliage, the beauty and size of the flowers, the season in which they appear; their variety, their abundance and their duration, are qualities which no other vegetable possesses, in such an eminent degree, and which assign it a distinguished rank, among the most admired plants, that are selected, for augmenting our pleasure and gratifying our taste in floriculture. But all these advantages are yet, very far, from being generally appreciated, notwithstanding this plant is every where received, by admirers without number; still it is much to be regretted, by enlightened horticulturists, that it is not more extended, more zeal evinced for its acquisition, and above all, better cultivated.

We daily hear, even well informed persons, observe, that the Camellia is a very difficult plant to manage, and that it is too dear; or that it requires green-houses, especially appropriated to it, and that it is very expensive to preserve them; while others abandon them because they have not a sufficient extent of ground for their accommodation, or a gardener sufficiently well educated to superintend their cultivation; and finally, many of those, who undertake their culture, soon give it up, because they do not succeed in making them bloom freely, and in the most perfect manner.

Devoted, for twenty years to the special culture of the Camellia, we are emboldened by the experience acquired, during that long lapse of time, to attempt the removal of all these enumerated difficulties, by describing, as far as our feeble abilities will permit, the manner in which this plant can be easily cultivated, preserved, multiplied, and made to bloom annually.

Although the Camellia is a shrub of a rustic nature, and does not require an elevated temperature, nor an extraordinary rich soil for its vegetation; although it can accommodate itself to all expositions; still it is better to be sheltered; and notwithstanding it can endure considerable cold, without perishing, yet, to enable it to acquire a vigorous vegetation, and blossom abundantly every year, as

well as to subject it, with success, to the various modes of multiplication, there are the following principal conditions, which are essential; in the first place, the soil in which it is to be cultivated, and which is, generally loam, vegetable mould or peat; but there is some difficulty in the choice of the composts and the mode of admixture; and for the benefit of the horticulturist, we shall extend our remarks on this subject, which is so very important to the successful results of their labors. By a good soil, we mean that mould or peat soil, which contains the largest portion of decayed vegetable and animal matter. It should be light, sandy, does not soil the fingers, and is of a chestnut brown, or deep fawn color. Such, in particular, are those of Sanois and Meudon, in the environs of Paris, as will be perceived by the following analysis.

Peat soil of Meudon.

Siliceous sand,	62 00
Vegetable matter,	20 00
Earth,	16 00
Carbonate of lime,	0 80
Soluble matter,	1 20
	100 00

Peat soil of Sanois.

Silex,	43 80
Lime, carbonate,	7 10
Salts, diliquescent,	1 10
Earth,	31 70
Iron, magnetic,	0 13
Matter not yet decomposed,	13 25
Loss of apparent foreign substances,	2 92
	100 00

The portions not decomposed or deliquescent salts, have yielded by an exact analysis,

Silex,	2 00
Carbonate of Lime,	15 00
Sulphate of lime,	10 00
Muriate of lime aud magnesia,	8 00
Animal matter,	12 00
Loss and water,	53 00
	100 00

The mould or peat soil of Palaiseau, Beauregard, Longjumeau, Vincennes, &c., is rejected, as too light, and as containing less

earth than the others. The two preceding are preferred, and especially that of Chapellen-Serval, which being richer in earth, they preserve for a longer time their fertilizing qualities, and are less subject to loss by rains and irrigations. The most objectionable is that of Fontainebleau,which is taken from low and marshy places, and whose color is of a dull and faded black, which indicates sufficiently the presence of turf, and renders this soil so compact and hard, that it is difficult for the roots of delicate plants to penetrate it. There is a still greater inconvenience, arising from its turfy nature, for when dry it becomes so hard that it is impermeable to water.

When a selection has been made, of one of the varieties of peat. which have been named, as the most suitable to the nature of the beautiful plant, which engages our attention, it should be cut into little pieces, about three inches square, and exposed to a free circulation of air, in a shaded position. The preference given to this substance arises, from its being light, substantial, and the length of time it retains its nourishing qualities. It is easily permeable to water, when it has not been dried too much, absorbs and retains a sufficient quantity of aqueous particles, admits of a free ramification of the roots, readily absorbs the atmospheric gases, and finally, remains for a long time endowed with the principle of fermentation, according to the quantity of subterranean gas disengaged, and the dissolution of the carbonic acid, so essential to vegetation.

We shall not speak of the peats of Gand, Turens, Anvers and Bruxelles, which are of a fawn color ; they are the best of all those with which we are acquainted.

When natural peat soil cannot be procured, a substitute to a certain extent, can be factitiously formed, which answers very well, and to which we give the name of compost, in conformity to the practice in England, where various kinds are so ably prepared.

Take natural rich and substantial loam, from pastures, or grass fields, with the turf, light mellow virgin soil from the forest, with all the roots and herbaceous plants with which it is covered, and rotten leaves ; mix these well together in equal parts, and form a conical heap so that the rain water may easily run off; this pile of compost is left in the open air, often dug over and repiled up, so as to be operated upon by the atmospheric gases which surround it, and a kind of fermentation, until it becomes a homogeneous mass, which

requires nearly a year, when it is fit for use, and affords an excellent equivalent for natural peat soil.

In England, where proper peat soil is rare, some of the ablest cultivators, such as the Loddiges, Swet, and Young, rear Camellias in a mellow natural loam, filled with vegetable substances, in a state of decomposition, mixed with a certain quantity of turf and fine sand; others, as Bayswater, employ a mixture of turf, naturally sandy soil, and a certain quantity of very old barn manure, reduced to an earthy state; and there are some, as is the case with Mr Henderson, a Scotch cultivator, who is very celebrated for his splendid collection of Camellias, makes use of a compost formed of light loam, fine river sand, and thoroughly decomposed leaves.

In Italy they use soil taken from the forests, mixed with decomposed leaves.

In those parts of Germany where peat soil can not be procured, it is replaced by a compost, formed of one third turf and two thirds of virgin earth, that is a little sandy, but well filled with decayed vegetable matter.

But whatever soil or compost is used, for the Camellia, it is necessary that it should be well pulverized and cleared of all stones, shells and pieces of wood; but if it is natural peat soil, take care not to imitate those unskilful and ignorant gardeners, who pass it carefully through a seive, by which inappropriate operation, it is deprived of a quantity of small roots, and other vegetable substances, which by gradually decaying, furnish, for a long time, successively prepared new aliment for the plants.

Before using peat soil, for repotting, it is best to break up the large lumps with a mallet, on what is still better a little flail, for the purpose of separating and removing the strong roots and stones; it is then passed through a coarse hurdle, or the little lumps may be pulverized, by rubbing them with the fingers. The soil thus prepared, is immediately used. Only the earth or compost which is to be employed, for seeds, cuttings and layers should be passed through a seive.

Section 2.—*Repotting.*

The spring is the most favorable season for repotting the Camellia. This operation should be performed immediately after florescence, and before the sap begins to be in activity, which is generally, towards the end of March. It may be done, however, in the

autumn, or even between the two periods of the flow of sap, which is in June or July. This process is performed by removing the shrubs into pots about an inch deeper, and broader, than those in which they have been growing. The time for doing it, is when the ball of earth, which surrounds the roots, is a little dry. As much of the old earth should be removed, as possible, by the fingers. All the dead and wounded roots should be carefully extirpated. As it is very essential, to the future health of the plant, that the water which is used in irrigation, should rapidly flow off, it is necessary that the bottom should be filled with little pieces of broken pots, or what is better a quantity of coarse sand or gravel, which prevents the water from remaining too long. We have been in the habit of scattering, very lightly, quick lime, over the pile of peat soil, or compost, which we use for repotting, as long experience has proved to us, that this mineral body, prudently employed, gives a remarkable activity to the vegetable qualities of the soil, with which it is incorporated.

We do not insist on the dimensions of the pots, which should be used for the Camellia, as that is an affair of taste and experience; but we should deny as an unwarrantable assertion which is often repeated, that small pots are best. Some horticulturists pretend, that to make this plant flourish well, the roots should be restrained by a small pot; but the persons who practise this method, have fallen into an error, which it is easy to refute, from the greater number and success of those, who cultivate the Camellia in large pots, boxes, and even the unconfined earth. There are two reasons which induce our nursery men to raise the Camellia in small pots: first because they occupy less space in the green-house, do not require so much compost to repot them, and they are more easily handled; and secondly, being often obliged to confide the watering of the plants, to inexperienced and careless persons, they pour on the water without discretion, which occasions great losses, as the large pots retain the humidity, much longer than the small, which has the same effect upon the plants, as too great a quantity of aliment upon the human body, and produces a true indigestion, which immediately kills the Camellia, after having produced disease in the roots, from being long immersed in that humidity, which they are no longer capable of absorbing. But, as with a little skill, all these inconveniences can be obviated, there cannot be a doubt, that the Camellia, will succeed better in large pots, where the roots can easily extend themselves, than in those of

small size, in which they are confined and compelled to be folded over, and entangled with each other.

As soon as the Camellia has been repotted, it should be abundantly watered and returned to the green-house, whenever this operation takes place immediately after the period of florescence; and the temperature should be from 50 to 60 degrees during the day, and from 50 to 54 during the night; but at other times it will be sufficient to place it in the shade for a few days, after it has been watered. The increased warmth of the green-house, at this period, causes the plants to throw out long and slender roots, and as the heat of the sun increases daily in its intensity, it is indispensable, that the green-house should be covered, with linen or cotton cloths, or thin mats, during the time the rays of the sun fall upon the glass; for without this precaution, the young shoots and leaves would be scorched and spotted.

[To be continued.]

Art. II.—*Horticultural Intelligence from France.*

The invigorating and pleasing science of Horticulture and Floriculture, has been greatly neglected in this country, in consequence of the continual demands made by the late Emperor Napoleon, from among the agricultural classes, to fill up the ranks of his armies, and it is only since the peace, that horticulture and gardening has become a favorite study with the volatile French nation. His present Majesty, Louis Philippe and his family, who passed so many years in England, the emporium of agricultural science and improvements, are the great patrons for propagating, throughout the country, the art of gardening, by giving every encouragement to the industrious nurseryman, not only in allowing him the privilege of obtaining, from the director of the royal gardens of Fontainbleau, Compiegne, Versailles, St. Cloud, &c., some of the rarest seeds and graftings, but by an annual distribution of medals, or money to the same amount. The great progress made by the Horticultural and Floricultural Society of London, through the indefatigable exertions of its scientific secretary, which has been imitated throughout all England, and strongly patronised by her most

gracious Majesty Queen Victoria, and the nobility, has had the best results in giving a stimulus to Horticulture, on this side the water. Previous to the peace of 1815, a garden laid out in the English style was not to be met with, but since 1830, so great has been the improvement in that art, that in the environs of this capital, Versailles and St. Germain, where many English families have erected some splendid residences, the grounds are laid out with all that taste and neatness so peculiar to the British nation. At Boulogne-sur-Mer and St. Omer, there are many nursery grounds that would not discredit the first-rate gardeners, planted by amateurs, many of whom are the fair sex.

The commerce of flowers is of the greatest importance to Paris, the seat of gaiety and lux, and as the new year approaches, the shops in the Palais Royal, Boulevards, and leading streets, present the appearance of a delightful green-house, decorated with the rarest festoons, as on that occasion it is customary to make presents of garlands, nosegays, and bons-bons to one's relations and friends. From an able article written by M. Hericat de Thury, on the progress of Floriculture, the sum spent weekly in Paris, during the winter months alone, in nosegays, flowers for balls and dresses, exceeds from 50,000 to 60,000 francs, making, in the course of a year, a sum beyond all credit in this article of fancy, in the higher circles as well as the middling. Notwithstanding this great demand for flowers, it will scarcely be believed that in this gay capitol, there are not more than twenty to five and twenty floricultural establishments that are able to supply the market with plants and nosegays, at a considerable profit, as the demands far exceed the possibility of procuring them. So backward has that science been in this country, that a considerable number of plants are obtained annually from London, and other parts of England, and even from Spain, Portugal, and Africa, to enable the French nurseryman or florist to fulfil his orders, and his speculation always meets with success. In London, the sale of flowers is, undoubtedly, very great, but in Paris it may be considered at least double, if not treble, and many a small nurseryman who sat up in business about fifteen years ago, with only fifty francs, possesses, from the computation that has been made by the Horticultural Society, at present, a fortune; and the horticulturist who could afford to place from 50,000 to 100,000 francs (4,000*l.*) in an establishment, by planting

young trees, &c., is at this day, a *millionaire!* There are four or five horticulturists in Paris, whose fortune exceed a million of francs, when, but a few years ago they only had a trifle to commence with, and still the market cannot be plentifully supplied with plants and flowers to meet the demand. A society has lately been formed in Paris, under the title of the "French, English, and Dutch Horticultural Society," at the head of which is his Majesty, Louis Philippe, the Queen, the Duke and Duchess of Orleans, the Duke of Nemours, and all the royal family of France, and leading nobility. The King of Holland, the prince of Orange, and the King and Queen of Belgium. The necessity of such a society in this capital, with leading branches throughout the country, has long been felt by the amateurs of horticultural science, and the establishing of correspondents all over Europe, and the principal parts of the globe, has been one of its first measures. The grounds taken by the society, are at 37, Boulevart Montparnasse, and are laid out with the greatesttaste, possessing,at present, upwards of400,000 plants, trees, &c., 150,000 rose trees, 20,000 camellias, of various ages, and the rarest sorts: 100,000 azaleas, rhododendrons, mimosas, ericas, and rose plants, from New Holland; 10,000 hyacinths, tulips, lilies, gladiolus, crocusses, &c., 10,000 dahlias, of five hundred varieties, besides an assortment of 50,000 hot-house and green-house plants. The society's gardens were opened on Sunday last to the public, for the first time, and notwithstanding that the weather was far from being favorable, the throng of visitors was very great, among whom were noticed some of the leading fashionables, both English and French. The directors were in attendance to receive the company, and give every information of the rare qualities of the different plants as the ladies walked through the various green-houses. The roses, myrtles, geraniums, lilies, orange trees in blossom, and with fruit, egg plants without number, young apple and pear trees with fruit, pine apples of extraordinary size, and the other numerous collection of the rarest flowers from all parts of the globe, were the admiration of all the amateurs, and some extensive purchases were made for Louis Philippe. Besides the gardens, the society has had built a splendid building in the Boulevard des Italiens, which will be opened on the 15th of January as an exhibition, and for the sale of the rarest plants and flowers, forming a most delightful horticultural promenade. This

exhibition will be open to horticulturists of all nations, who may think proper to send their productions either for show or for sale, and the greatest care will be taken of their plants by the society. Those who wish may have their names affixed. Public shows will take place at various periods of the year, when a distribution of medals and prizes will be made in presence of some branch of the royal family, and leading amateurs. An account will be also kept of the exhibitions of plants that may take place in the departments, in England, Holland, and Belgium, and the names and samples of those which may have obtained prizes will be procured by the society, should they not possess them already in their gardens. The society is at present formed of 1,000 shareholders of 500 francs, or 20*l.* each, at five per cent. interest, and three per cent. dividend. The members will receive, gratuitously, every information as to the cultivating of their plants, &c., by the most experienced nurseryman, French, as well as English. So advanced are the flowers, that from the 15th of January, the society will be able to furnish from 5 to 800 choice nosegays, per diem, of the finest camellias, and other rare plants.

Art. III. — *Instructions for Truffle Searching.* Translated from the German of V. F. Fischer.

(Continued.)

II. Truffle-Hunting, or Truffle Search in particular.

General Remarks on Truffle Hunting, or Truffle Search.—The act which has for its object the getting possession of wild, useful, or injurious animals, by searching for them according to art, and catching or killing them with an apparatus to that effect, and for the most part by the assistance of domestic animals trained for the purpose, is commonly called hunting. To the obtaining of other natural productions from other natural kingdoms, unless we speak figuratively, we cannot apply the term "hunting," although at the same time many individual marks of the idea may occur. The searching for and obtaining of truffles, which are a product of the vegetable kingdom, cannot therefore be properly called truffle-hunting, since the taking up of better organised bulbous roots is certainly not called hunting. No indication of the idea of hunting occurs in the acquisition of ruffles, except that they are usually

sought for by trained tame animals, and by particular persons whose employment it now is; though this has not exclusively, or for a considerable time been the case. It would be better, therefore, to make use of the term truffle-searching than truffle-hunting, as some writers who make slight mention of truffle-hunting have very properly observed; for example Justi in his *Technological Dictionary*, and the editor of the *Practical Forester and Gamekeeper*, and several others. In the mean time this shall not prevent us from making use of the expression that has been adopted, and has once been current; the question here is merely a verbal one, and *in verbis simus faciles*. The use of an expression is not, however, entirely a matter of indifference, inasmuch as it may easily mislead us to adjudge the benefit of truffles to the chase, and to him who has the right of hunting, as in many countries is actually the case. It by no means belongs to the chase, but to the beneficial interest in the forest or wood; because it occurs almost exclusively only in woods and wood soil, and not throughout the whole hunting district. In the proper sense of the word it can be specially enumerated only amongst the accessory advantages of woods.

The truffle search is practised in various ways: methodically, by proper truffle-hunters with dogs or swine that are trained, in which way only ripe truffles are found; or arbitrary irregular digging, in those places where indications of the existence of truffles are perceived, in which way truffles of all ages are got, and many embryos (if I may use the expression) are destroyed, the further formation of truffles is prevented, and the truffle district ruined.

The last kind may be compared to what the unsportsmanlike chase of hunting a trail is in hunting, or the unforesterlike use of the productions of the forest is in the management of a forest, and ought by no means to be permitted, but always punished as a forest prodigality. Besides, truffles in later times have become considerably more rare. The many falls of woods, and exterminations of forests, which have been occasioned by the present wars and the former calamities of the country, the increase of population, and the converting of many woods to other purposes, have in several districts in a great measure extirpated truffles, and consequently they ought not to be made still more scarce, and in whole districts entirely destroyed.

I shall, therefore, speak more at large only of the methodical

truffle-hunting with dogs, by means of which that with swine has been, in later times, in a great measure supplanted; and which former mode, as far as I am acquainted with both, deserves the preference. I shall treat of that of the swine only superficially.

How long Truffle-Hunting has been practised.—The methodical search of truffles with dogs or swine seems to be a device of later times; for I have discovered no traces of it in ancient writings. Accordingly, the ancients appear to have sought for truffles in the destructive mode above mentioned; viz. by digging up whole districts.

In Italy, France, and Spain, where rare and exquisite delicacies were more and earlier esteemed, this mode of truffle searching was earlier known than in Germany. Nevertheless, as may be conjectured from an observation of Geoffroy, it was not practised in the first mentioned countries before the middle of the seventeenth century; and in the begining of the last it was transferred to Germany. Stisser, in his *History of German Forests and Hunting*, 1st ed. 1738, chap. vii. sect. 65. informs us that, in consideration of his yearly delivering a quantity of truffles, a privilege for the searching for truffles in the principality of Halberstadt was first given to Bernard Vanino, Italian; and that the proper hunters had nothing in common with the truffle-hunters.

In the court of the Grand-Duchy of Baden, the first truffle-hunter existed about seventy years ago, and was a Frenchman. It is true, this man carried on the search of truffles in a rather expensive way; but he may be said to have established the art, since several persons whom he had employed in it learnt it from him. The truffle-hunters at the other German courts were also all Italian, Piedmontese, Savoyards, or Frenchmen, who made truffle-searching with dogs the order of the day.

The requisite tools for truffle-hunting.—The truffle-hunter does not require for his chase an equipment so carefully made, and such a numerous collection of instruments, as the huntsman. His tools are simple, and few in number. A hunting-bag is indispensably necessary for him, to keep such truffles in as he may find, and for provision for himself and his dogs; to which, as is said below, a morsel, by way of encouragement, must frequently be given. A sharp, strong, not costly cutlass, is essentially useful, to cut the shrubs and small roots which may obstruct his digging out the

truffles. The most necessary to him is a simple instrument, his principal tool, with which the truffles are dug out. This consists of a heart-shaped shovel, of from 3 to 4 inches in length, and 3½ inches in breadth; and of a hoe horizontally bent, of the same size, and also heart-shaped. These two pieces must, by means of two hoops, be both fastened upon one wooden shaft, of about 2 feet long; the hoe to the upper, and the shovel to the under, part of it. In using this instrument, the earth must be carefully scraped away with the hoe till the truffle is visible: the instrument is then turned, and the shovel is thrust a few inches deep into the earth near the truffle, which must be raised out as with a spade.

Of all other instruments which different truffle-hunters get made after their own ideas, this seems to me the best adapted for the purpose; besides which it requires no great outlay. The truffle-hunter, when he uses in his search more than one dog, must be furnished with a pair of dog-couples, to couple his dogs with when he goes out, to prevent their wearying themselves with running about before they arrive at the place where they are to search.

Choice and training of truffle Dogs.—Truffles are perceptible to animals with a delicate sense of smelling, chiefly by the smell which they diffuse when ripe. The dog, as is well known, is at the head of domestic animals with an acute smell; and there is no doubt that dogs of all races, provided they are somewhat docile, may be used in truffle-hunting; though water-dogs (pudelhunde) are preferred for this purpose, and next to them are spaniels and setting dogs. The last, incontestably, would do quite as well for this search as poodles or water-dogs, if their instinct did not lead them away from the search of truffles, to follow the track and scent of game. Pudel, or as we spell it in English, poodle, is a German word, and is used to designate that race of dogs which formerly used to be called water-dogs. Poodles seldomer pursue such track of game; and even if they start it, they appear frightened, and keep closer to their work, from which property they are peculiarly fit for truffle dogs. Dogs are taken indifferently of the pure poodle breed; no matter whether those from which they are bred have been truffle-finders or not. The color, upon which some lay a stress, is of no consequence. The name which is given to the young truffle dog is of still less importance; and it is extremely ridiculous that some insist upon the truffle dog being named Putta, in the Italian language.

A good truffle dog must be, 1. Very tractable, or be at a call; 2. He must search diligently and indefatigably; 3. When he scents a ripe truffle he must hunt for it; 4. When he has completely discovered it, he must show the place where it is, by scratching with his fore feet; and, 5. When he has got it completely out, he must take it to his master without breaking into or devouring it. A dog that has these qualities may be called quite steady, and is trained in the following manner:—

The first training is begun very early. When the dog is nine weeks or a quarter of a year old, he is taught to come at a call. You must whistle to him, or call to him saying "Here;" and praise him when he comes immediately, or punish him, though gently, when he is inattentive either to the whistle or the call. This must be daily practised and repeated, till he comprehends, and is obedient to, his master's voice or signal. If very stubborn, he must, like a setting dog, be led by a cord, and upon a whistle or call, be so long pulled in, till he is at last obedient of himself. Then a beginning is made with fetching and carrying, which is the thorough base of a good truffle dog. This is frequently learnt in play by the young poodle, with which force is not near so necessary as with the young setting dog, the latter being often obstinate. To teach the dog to fetch and carry, a light piece of wood, or a wisp of straw made up for the purpose, is thrown before him. If he fetches it, he is praised and rewarded with a morsel of bread. &c.; if he does not fetch it, he must be instructed to do it. The piece of wood is placed in his mouth; let him carry it a few steps, and caress him at the same time. The docile poodle soon comprehends what is required of him. If he fetches the wood, potatoes, apples, pears, bulbous roots, and even truffles are then thrown before him. These objects he fetches just as willingly as the piece of wood. Care, however, should be taken that dead animals be not thrown to him; as by this his love of the chase might easily be awakened. Whenever he fetches a bulbous root, &c., he must be rewarded with a small piece of white or brown bread, and at the same time he must have a truffle to taste. Although this is the cause when he seeks for truffles that he sometimes breaks into them, yet it is essentially advantageous; because by this means he becomes perfectly acquainted with the object which he is hunting for, like a hound that is permitted to eat game. If at that time of the year no truffles are to be

had, let a little old cheese, which has nearly the same effect, be given to the dog. But let both be given to him, not only at the very time of his training, but as a dessert at his usual time of feeding, during the whole time of his instruction.

If the dog fetches every thing without distinction, as metal, gold, beans, &c., and is no longer stubborn, the elementary instruction, or chamber-training, is finished, and the training in the field is now proceeded to. This is begun by the dog's "seeking what is lost, or fetching it." This is first done with wood, with fruit, and with truffles, which are so hidden somewhere on the surface that he may easily find them. The instructor may also now begin to make artificial truffles, when natural ones are to be had. They are prepared from strong-smelling cheese and fresh bread, which are mixed and formed into the shape of a truffle, to which is added a little of what is called truffle oil that is, olive oil in which truffles have been boiled. If the dog does his duty, and easily finds the objects he has been accustomed to seek, the natural or artificial truffle is lightly covered with earth, and the dog is told to "seek what is lost." If he do not find it, he is led to the place, and attempts are then made to induce him to scent and grub out what is hidden. The dog must then be rewarded in the way that has been so often mentioned.

The dog is assiduously practised in this 'seeking what is lost;' the truffle is put deeper into the earth, and the dog is now first taken into actual truffle districts. The proceeding there is to be the same as before. Never omit to encourage him when he finds, and points out the place by scratching. By degrees he is accustomed to a continued regular search, like a setting dog; and he is admonished by the thrilling whistle with the mouth, by the expression, "Seek further," or "Go seek," or "Forward." When the dog scents a ripe truffle, and draws to, or in any way approaches it, as hounds do when they scent any thing, his instructor says, "That's right," "Gently," &c., to make him more careful and diligent till he points it out. Here endeavors are made, by further speaking to him, either to prevent his injuring, digging out, and eating the truffle; or else, by the word "Fetch," to make him bring it to his master when he has completely dug it out, which is easily done when it lies near the surface.

When a dog begins to break into the truffles, and to eat them, or

when he refuses to give them up, endeavors must be made to break him of this by gentle punishment, and by holding out bread to him. He must likewise be chid for digging after mice, or hunting after birds and hares, to which poodles are inclined.

By a little practice, the dog soon acquires a certain degree of steadiness; and, after these two courses of instruction, is immediately fit to be used in truffle-searching, of which a short outline will now be added. It must still however be observed, that the dogs must have good and nourishing food, chiefly of vegetables. They must not run at large too much, but be confined a good deal to the kennel; and to keep them in practice, they must be led out to seek truffles the whole year through, although no great quantity can be expected to be met with.

Truffle-Hunting, or Search, with dogs.—When the truffle-hunter goes out upon search, he must beforehand be able to form an opinion in what places, according to the districts, truffles are to be found; he must be acquainted with the localities. When he goes out upon search, he must either not feed his dogs at a ll, or very sparingly, that they may be diligent in seeking. This precept is also observed in the chase of every kind of game, and with every species of hound. He must, lastly, be furnished with bread for his dogs, and with the necessary implements. He can seldom in search superintend more than two dogs at a time; and with these, in districts that are rich in truffles, he will have his hands full and not be able tc drive his work quick enough forward. In searching, he proceeds in the same way that has already been mentioned in the training. He encourages his dogs by whistling, and mildly speaking to them. He redoubles the last when the dog finds a truffle and points it out. In this case he lastly calls him, and immediately gives him a suitable piece of bread (which, with respect to dogs that are used in the chase of animals, is neither so necessary, nor so carefully observed) truffle dogs are prevented from eating the sound truffles. If the truffle is not yet visible, it is scratched out and raised with the instrument described in section 12, in the manner there directed. When a truffle is taken out and examined by its smell, it is advisable to search the place further; to scratch away the soil with the hoe part of the instrument, or to dig it up; there are often found in it more truffles, some ripe and some unripe, as is mentioned in section 5. These the truffle-hunter takes along with him also; for a

few unripe or scentless truffles make, in a large quantity, no great difference, and do no harm. It is besides advisable, in such a place to look carefully about, especially when it is perceived to be a good, fertile, and moist vegetable soil ; as then even with the naked eye, fine truffles are often discovered only half hidden in the earth, though they have not the ripe smell that is peculiar to truffles, and have, consequently, not been earlier found by the dog. He that chooses to have no truffles but ripe ones, may mark those which he has discovered by the eye, and in a fortnight or three weeks afterwards may seek them out, when they will be ripe, and may be had if no animals have previously grubbed them up.

The search is proceeded in the manner directed ; but since the truffle dog does not so easily, and from such a distance, scent the truffle which is concealed in the earth, and diffuses an earthy smell around, as a hound scents game in a good wind, a person must go much more accurately to work in searching a district that produces truffles, than in seeking for game, and not be impatient at going through a place twice, and even three times, and at remaining a long time upon a small spot. The trouble is often richly rewarded, by the frequent finding of the dogs. Although truffles ripen and may be sought for the whole year, yet the time preferably made choice of is from July to November, when the frosts set in, in which time the greatest number of truffles ripen. The months which yield the most are September and October; nevertheless, good truffles are found after the frost has commenced, if it be not too severe.

It frequently happens that the indication of the dog is deceptive, and that nothing is found at the place pointed out. In such place a truffle has generally been taken out, the scent of which was perceived by the dog.

The Truffle Search with Swine, and the manner of Training them. —In the 7th section it has been already mentioned that wild and domestic swine are fond of truffles, and seek them assiduously. It has, moreover, been more than once remarked, that animals with a delicate sense of smelling easily find ripe truffles. The domestic swine belongs likewise to this class of animals; and upon the two qualities which have been mentioned is founded their use in truffle-searching, which has already long prevailed in the south of Europe, in Spain, in the south of France, and in some districts of Italy,

but which in those countries has in a great measure been supplanted by the more convenient use of dogs. I once saw a French emigrant, many years ago, practise truffle-searching with swine; but this, as he assured me, was more for want of a poodle than from any other cause. Undoubtedly the search with dogs has the advantage of that with swine. The dog is more intelligent, more active, and may be used a greater number of years. All these qualities are wanting in the swine. I therefore here give the outline of the training and use of swine in truffle-searching, rather historically, and to make this work more complete, than because I recommend its practice.

As soon as the pigs are weaned, a lively one is made choice of, usually a female, and is separated from the rest. It is more habituated to human society. Endeavors are made to make it obey the call and whistle, and follow its master like a dog, either when it is at large, or fastened by the hind leg. This it does without much trouble, when it is fed by a person's own hand, and is allured by food from one place to another; and when it is sometimes caressed like a dog. There is a very interesting instance of the taming of a young boar that was caught wild, which went a hunting with the hounds. It is to be met with in the delightful *Forest Journal* of Hartig, first year, 1806, p. 545. When four months old, the young pig may, in a proper place, be accustomed to the searh. Either real or artificial truffles, or fruit that swine are fond of, such as apples and pears, or potatoes, &c., which have been smeared with truffle oil, are then hidden, and the pig is allowed to grub them up. He finds them without much difficulty. They are taken from him, and his usual food is given to him: a few acorns, chestnuts, fruit, and such like are the best; and for this he, in general, willingly exchanges what he has found. When in his fifth or sixth month, the swine may be first used in the actual search. He is led whilst fasting or very sparingly fed, into the truffle district, and closely followed always by a person on foot. If he begins to turn his nose to the wind, to smell, and to grub up, you can either search the place and take away the truffle before he has brought it to the day, or let him root it out himself and take it from him quickly, by way of exchange as has been mentioned. But swine often devour the truffles so greedily and so quickly after they have rooted them out, that you can seldom or never take them from them. In this case, in France,

their mouths are bound either by a metal ring, or a leathern muzzle, which is strapped over the snout, and fastened behind the ears. Some truffle-hunters put this also in practice with dogs that are spoiled; but it is one of those extremes to which a keen hunter is not easily led, and he generally prefers parting with his dog.

The search for truffles is often tedious and wearisome with swine, which not only root after truffles, but after other articles of food, as roots, insects, larvæ, worms, &c. Expectation is often disappointed, and we cannot always be sure of what is found, as with dogs, when they hunt for and, by scratching, point out the presence of the truffle. Besides this, a swine can be used for the search only a year or, at most, two summers and autumns. In the third year they become too large, too unruly, and in a condition in which they must be made use of with a view to economy; that is, must be killed. Proper truffle-hunters, therefore, very seldom seek them with swine, but leave this to the peasants; who, in the South of France, and some districts of Italy, pursue the practice. This mode of search is said to be there carried on chiefly by women.

Conclusion.—Much still remains to be investigated with respect to the nature of truffles, especially as to their origin and increase. Foresters endowed with a spirit of enquiry, and some botanical, and particularly physiological, knowledge, might still make many interesting discoveries with respect to these distinguished productions of nature, if in their sylvan excursions they would pay a closer attention to them. I will myself at every opportunity, which offers, endeavor to advance in my enquiries and observations, and, when I find the latter sufficiently interesting, communicate them in some periodical paper. I shall particularly endeavor, along with a practised chemist, to make and publish a chemical analysis of truffles; since the old one, which was communicated, now exactly 100 years ago, by Geoffroy, whom I have so often mentioned, and according to which truffles are said to contain sulphur and volatile alkali, now that chemistry has made such great progress, is no longer satisfactory. If this slight sketch, which was made for the purpose, gives some instruction to such of my brother foresters as are not experienced in the art, and only half-satisfies the connoisseur, I shall not look upon my attempt as entirely unsuccessful.

(To be continued.)

ART. IV.—*Management of Cold Frames for protecting Cauliflower and Cabbage Plants during the Winter.* By E. SAYERS.

IN order to complete the series of framing hitherto published in the Register, I conclude by the management of cold frames, which although out of season, I hope will be found useful to those who are desirous to protect esculent vegetables, through the winter for early planting.

In order to have cauliflowers and cabbage early in the spring it will be proper to plant and protect them through the winter in cold frames.

The seed may be sown in the kitchen garden about the middle of September; and the plants pricked out into the frames the latter end of October in the following manner.

Place a three light frame or more, on a south border protected by a high fence or other means or any well sheltered situation, on the level surface, or if a little rise the better; the frame is then to be filled with compost with a portion of coarse sand to within 4 inches of the glass; this done the plants are to be dibbled or pricked into the compost 2 inches apart and lightly watered to settle the earth about their roots. In this situation they are to remain until the frost sets in; when the sashes may be closed of a night and taken off in the day, in such a manner as to merely keep out the frost; the more hardy they are kept the better at this season, by which the severe weather will not have so great effect on them. When the winter sets in severe, the frame may be lined on every side with leaves or horse manure to keep out the frost.

The frame will require to be covered of a night and in very cold weather of a day time; but in mild changes air may be admitted and the plants worked between with a small hoe, to refresh the soil and disturb any insect that may breed among them.

This treatment may be continued until March when the plants are to be forwarded for planting out in the open ground by regularly covering and giving air to cause the plants to vegetate previous to their removal.

WINTER LETTUCE.

In the beginning of August, some Imperial Cabbage Lettuce seed may be sown for winter use, in the kitchen garden department.

When the plants are of a proper size for planting, a frame may be prepared in the same manner as for a cabbage; when the plants are to be dibbled 12 inches apart each way into rows. The frame will now require regular attention; by covering of a night, giving air of a day; and, every method is to be taken to grow the lettuce to a full size, before the winter sets in severe, as after that time, their growth will be difficult. The frame will require to be protected, and every way managed as directed for cabbage plants. Great caution must be taken to keep the lettuce as dry as possible, as the least moisture from rain or otherwise will rot out the heart and eventually spoil the plants. Frames properly managed in this way, will give a supply of lettuce through the winter,and until the spring crop is in use.

WINTER CAULIFLOWERS.

Where frames can be spared, an early supply of cauliflowers may be obtained by forwarding some plants in the fall, and flowering them in the spring. The seed may be sown early in July, in the kitchen garden, and every way managed as directed in that department for flowering. It will be prudent to plant more than is wanted for the frames in this manner, as the long mild weather in the fall often is the cause of some of the plants coming to maturity, in which case they are generally very acceptable.

In the beginning of November, the frame may be placed precisely the same as for the cabbage and lettuce, into which the cauliflowers are to be laid in, in a slanting manner, with their heads towards the north; the frame may be in this manner stowed full in every part. The management of the frame will require to be in every respect attended to, as the cabbage and lettuce; until the spring, when the plants must have all the air that can possibly be admitted to them in order to prepare them for flowering. As the season advances, the frame may be kept more warm, and when the earth gets dry, it will be requisite to water them, in order to swell the flowers to proper and handsome size.

By this mode, good cauliflowers may be obtained late in April or early in May.

Art. V.—*Isabella Grape Vines.* By Alden Spooner.

Sir,—The cultivation of grape vines and making of wine is getting to be so well understood throughout the United States, through the medium of our excellent agricultural periodicals, that what I am about to write, is probably already known to some of your readers; yet the repetition of interesting facts is often of much benefit, and the results of experience in these matters can scarcely be too often repeated.

The very numerous attempts to raise grapes from foreign vines in the *open air*, have resulted in disappointment. The late Mr Parmentier, of Brooklyn, Long-Island, devoted much labor and expense on foreign vines, to very little purpose. Mr Loubat, also near Brooklyn, planted a large vineyard, and for some years flattered himself with hopes, which resulted in loss or disappointment. In some few instances in Brooklyn and New York, where the vines were protected by surrounding buildings, the Chasselas and other foreign varieties yielded well, thereby only demonstrating that such fruit *can be* obtained, if cultivators will be at the trouble of erecting proper houses for the purpose.

The Isabella grape vine is supposed to be a native of North Carolina. It first obtained its well deserved notoriety at Brooklyn, in the garden of George Gibbs, Esq. now of St. Augustine, Florida; and derived its new name from his lady, Mrs Isabe'la Gibbs, who was instrumental in obtaining it from the south for her garden. The original parent of all the Isabella vines is now to be seen in the garden of Zachariah Lewis, Esq. on Brooklyn Heights. This favorite vine has spread itself throughout the northern states of the Union, in Canada, and has been imported into France, and drawn forth the favorable notice of the French cultivators. Almost every garden and dooryard in Brooklyn and New York can boast of its prolific vine, always yielding abundance to the careful cultivator.

In the year 1827, I set out, at a small place near Brooklyn, the cuttings for about 300 Isabella vines, and 50 foreign vines from France and Germany. By reason of careless cultivation from bad tenants, they did not come into bearing until 1831, in which year I was able to exhibit five kinds of very fine grapes at the horticultural exhibition in New York. I also sent large quantities to the

market, and made about fifty gallons of wine, merely as an experiment, as I supposed myself to be the first who had attempted to make wine of this grape. This wine was of two kinds, made in October, 1831, and in the April following was put into bottles, and one bottle of each kind sent to about fifty persons in different parts, who were supposed to feel an interest in the matter. One kind was made of pure juice, to which two pounds of sugar to each gallon was added. The other kind was composed of one third water to two thirds juice—three pounds of sugar to each gallon—one gallon of brandy to a cask of nineteen gallons. Some of this wine attained five years, and was pronounced very excellent.

In the year 1832, my little vineyard bore very abundantly, and I made, in October of that year, eight barrels of wine. It was made in a variety of modes, to test the quality of the grape, and did not all prove good ; but far the greater part was very excellent, and improved with age.

I will now proceed to describe my mode of planting and cultivating the vine, and of making wine.

The cuttings intended for propagation are of any well ripened wood of the last year's growth, embracing three or more joints or buds. It is preferred that it should be connected at the lower joint with some small part of the old wood of the previous year. These cuttings are taken off from the parent vine at any time between the first of November and first of March, and immediately buried in the earth, or put under earth in the cellar ; or sometimes the ends are put in a box or basket with earth, and set in a greenhouse, and water occasionally sprinkled on them. In the spring, if they are not placed in their permanent locations, they may be carefully set out in the garden, at one foot apart every way, the upper bud being just even with the surface of the earth. If the season is dry, they will require to be watered several times to insure their growth. They will grow a foot or more in length the first season. In the following spring they may be transplanted to their permanent places, around buildings, fences, trees, and arbors. I trim the new sprout down to three or four buds, intending that two only shall be allowed to grow, and these to be trained off from the root in different directions, according to the circumstances of your trellis, or supporter. My vineyard was planted in rows, eight feet apart, and vines eight feet in the rows ; but after a few years the

trellis became so burdened, that I took up and removed one half the vines, and left them sixteen feet apart in the rows. Each vine, therefore had sixteen feet of trellis, being eight feet on each side of the root. The two main branches were tied to the lower rail of the trellis, and the lateral branches tied to the rails above.

My trellis was composed of four lath, open at the top, as I supposed it was necessary that the sun and air should have a good circulation among the vines; but I am now convinced that a top surface, as afforded by an arbor, is necessary. The great exuberance of the vine causes the new shoots to run up into the air above the trellis, and the wind will prostrate and break them, unless they have a flat arbor to rest upon. The fruit hangs with great weight on the branches, which are often broken unless they can rest on an arbor, or are well tied to the upright supporters.

As there are four distinct prunings, or trimmings, required in properly cultivating the Isabella vine, I will now describe them; merely remarking, that although the vine will give fruit when some of these trimmings are neglected, yet no cultivator has a right to expect *good fruit* without bestowing the requisite time and attention to these prunings.

First, the winter pruning. This is best done in February or March, provided the vines are not frozen; but may be done at any time between October and April. It consists in reducing the old wood according to the extent of your trellis, and the age of the vine, and strength of the root. All unripe wood is cleared off—old wood thinned out, and ripe wood of the last year's growth shortened down to two or three buds, except such runners as shall be selected to cover the trellis. Much depends on judgment in this trimming. It is difficult to describe precise rules. Those who love the grape should cut boldly, and acquire knowledge by experience and close observation. Every branch should at this pruning be strongly tied to the trellis.

The *second* pruning, or budding, takes place about the 10th of May. The buds have then thrown out their branches an inch or two, and generally two or three branches at every bud, or joint. These must all be reduced to one shoot, or branch, always leaving the stoutest or best shoot. They are disengaged with a slight touch and a short time would suffice for many vines.

The *third* pruning takes place about the middle of June, and

sometimes earlier, and is best performed with a pair of shears or scissors. At this time I cut off what ore called *laterals*—a branch growing out of the green wood on the side opposite to the fruit. These laterals may be broken or cut off quite down to the main branch at any time during the season ; but it is better to remove them early, before they have acquired size and strength at the expense of the rest of the vine.

The *fourth* and last pruning is called *stopping*, or *shortening*, and is done with a shears or a knife. It should be done about the middle of July, when the fruit has attained about half its growth. I then shorten all the branches having fruit on them, (except those retained for permanent runners,) by cutting them at two or three joints forward of the fruit. This is a heavy and essential pruning, and divests the vine of much green wood and leaves, and is considered important to the development and ripening of the fruit. I would, however, particularly caution the operator against at any time removing the leaves of the vine, except such as are attached to the laterals and shortenings, and come away with them. The leaves are vitally important to the ripening of the fruit, which is always the best in the deepest shade. Such fruit as by accident becomes exposed to the sun, is sure to be very inferior and sour.

About the 8th of June, while the vine is in flower, and throwing its peculiar and delicious perfume all around, its great enemy, the *rose-bug*, makes its appearance, and feeds with voracity on the sweet and delicate blossom. In a few days after their first appearance, thousands are seen, carrying destruction throughout the vineyard. The best remedy I could ever devise, is to go among the vines early in the morning, before the sun has warmed them into activity, and they are then easily made to fall into the hand or on the ground, and may be crushed and destroyed. A few mornings spent in this way will clear the vineyard, as they are a short lived enemy.

In the latter part of July, the *blight* or *rot* takes place where the Isabella grape vines are cultivated in fields, but it is seldom seen among those cultivated in cities. Great quantities of fruit will become brown, and sometimes black, and fall off. It is not easy to account for this destruction, which is seen as much on the high as on the low vines, and no less on fruit exposed to the sun, than on that in the shade. As an experiment, I discharged with a syringe, lime-water, sulphur-water, and soap-suds upon them, and also sifted

dry sulphur on the fruit, but without any sensible effect. I feared I should lose all my grapes, but to my surprise, I had a great crop, notwithstanding the rot. I have since supposed it might arise from the exuberance of the vine, which like the peach and apple tree, may perhaps thus disburden itself of a portion of its fruit; but even on this principle it is difficult to account for its non-appearance in cities, where the quantities of pure fruit are quite astonishing.

I have observed in the cities, that spiders and caterpillars are in some degree destructive to the green fruit. Spiders will get to the centre of the cluster, and cause the fruit to fall in single grapes, but the caterpillar attacks the stem, and the whole green cluster falls to ground.

I have in a few instances trained the vines upon large apple trees, and the grapes were abundant among the apples; but I do not think this mode is to be recommended where other supports can be had. The fruit was inferior.

In the city of Brooklyn,and among high buildings, my vines have not failed to produce abundantly every season, during the last fourteen years. This is an interesting fact to all who cultivate the grape. At my vineyard in the country, they have declined very much, which I attribute to the neglect and ignorance of the tenants on the place. Even in the country they are much better around the buildings than in the open fields. There are from three to five clusters on every fruit bearing branch. I have in a few instances seen six. The extremities of the vine generally produce the best fruit, and there is often much difference in the quality of the fruit on the same vine. They may be trained a great distance over large arbors, and on the roofs and around the upper windows of our high houses. New branches will sometimes grow from twenty to thirty feet in one season.

The vine is sometimes propagated by *layers*, which consists in bending down the branch into a channel dug in the earth, and burying it at a proper depth, in a curving line, with the end above the earth. Roots will start plentifully from the part in the earth, and when it is well rooted may be cut from the parent vine and transplanted. If proper care is taken, the cuttings as well as roots may be sent a great distance. I sent a quantity of cuttings, packed in moist sods in a box via New Orleans to Arkansas, and had the satisfaction to learn that they were all alive on their arrival, and had been successfully planted out.

In March 1832, I sold ten thousand cuttings to William Underhill, of Teller's Point, near Sing-Sing, N. Y. I have never visited his vineyard, but understand he is a successful cultivator.

Nothing is lost in a vineyard, as the green trimmings, in summer are good for cattle, and winter trimmings when not required for propagation make good fuel. — *Cultivator*.

(To be continued.)

Art. VI.—*Onions.*

On reading an article in the Cabinet of March 15th, 1837, upon the culture of onions in Wethersfield, I concluded to try the experiment of raising them on Delaware soil.

I dressed an eighth of an acre with four cart loads of well rotted stable manure, being a part of a parsnip lot planted last year for spring feeding of milch cows. After the manure was very evenly spread over the ground, it was ploughed in ridges, and planted with nine ounces of seed.

I did not pursue the Wethersfield plan of sowing the seed in rows, but put them in hills, supposing it would take less seed, less work, and produce equally as good a crop. The instrument to plant them was made in the following manner: A lath about four feet long, with four holes bored through it with an inch auger ten inches apart, which were filled with pegs which projected through the lath about one and a quarter inches; then a handle of three feet long was put in the centre of the lath to carry it by; this instrument was then laid across the bed, which, by stepping on it with one foot on each side of the handle, four holes were made ten inches asunder; then moving it about a foot, and repeating the operation, the bed was soon filled with holes ten inches one way, and about a foot the other. A few seeds were then dropped in each hole, the beds raked and rolled, which finished the operation of planting.

As soon as the plants began to appear, the beds were raked between the hills with a small rake made of tenpenny nails, which retarded the growth of the weeds, and caused the young onions to advance in size and strength before the time of weeding and dressing them with a hoe had arrived. I regard this little operation of early raking the beds quite an improvement; for part of the ground

was not managed in this way, and the process of weeding was much more difficult; besides, in extracting the weeds, many of the young onions would fall down, and some of them were pulled up in consequence of the weeds having acquired a growth equal to the onions.

They were dressed several times through the season by pulling the weeds and using the rake and the hoe. The work being done at intervals, and mostly by children, no very accurate account was kept of the labor, but it did not exceed ten days' work for a full hand. They grew very large, many of them measuring thirteen and a half inches in circumference, and many of the hills had three or four clustered together; they are excellent for the table, fine flavored, with none of that rank, strong taste, so common to onions raised from sets. One of the beds was measured, by which the average produce was over 50 bushels on the whole ground, which would exceed four hundred bushels to the acre.

Although the produce equalled Wethersfield in amount, I was somewhat disappointed on finding several bushels of them not of a merchantable kind; they had thick necks, sort of evergreens; they would neither die nor dry, commonly called scullions by gardeners.

I see it stated, I think in the American Gardener, that no crop is more difficult to accommodate with suitable soil, than the onion, in consequence of its disposition to behave in the manner I have stated. The ground this experiment was tried upon, is rather a stiff clay, but very much softened with lime and manure, yet I presume it is not exactly the soil they like. I intend next season to select a more sandy location, for I am rather pleased with the partial success of the operation.

The onion does not seem to want as much manure as other root crops, particularly the potato and ruta baga turnip; they require, it is true, considerable more labor, but the value of the crop would, upon an average, be double, and more, if the difficulty I have mentioned could be surmounted.

I suppose that two and a half or three acres of onions could be raised by hiring one additional hand through the summer season; besides, it is sometimes profitable to increase the varieties of labor on a farm, when workmen are employed to perform it. In mowing time and harvest, we frequently have spells of wet, damp weather, and a field of roots not only gives employment to all hands during

such intervals, but pays the expense of an additional hand through the summer, by which the severe operation of gathering hay and grain is very much reduced.—*Farmer's Cabinet.*

Art. VII.—*The Sugar Maple.*

You are aware, I presume, that immense quantities of sugar are annually made from the juice of the Acer saccharinum, in the west of Pennsylvania and New York, with which our forests abound (Professor Kid, in his *Bridgwater Treatise*, says they are "cultivated"!); and, as the peculiarities attending the flow of this juice have puzzled me to explain them, I have resolved to state them to you. 1st, It is as completely locked up by continued warmth as by frost, and only flows by the alternate operation of these agents; yet the same degrees of heat, even after frost, have not always the same effect. Thus, a warm south wind stops the flowing more than a cool nothwest wind. A bracing wind promotes the discharge, and a relaxing wind checks it. 2dly, the juice flows for twentyfour hours after a frost, but when a tapped tree has ceased, tap a new tree, and it will flow considerably, as if a certain quantity was discharged by the frost. The juice flows from all sides of the incision. 3d, tap a tree early in the morning, after a cold night, and no juice will flow; tap it a few hours after, if the day be moderately warm, and the juice will issue in streams. February, and early in March, are the months in which the sugar is made. The people encamp in the woods, and remain there until the trees cease to flow, or they have procured as much as they require. Now, I wish to know, if the saccharine juice be sap, how it happens that a moderately cold night is essential to an abundant flow next day? The farmers told me, "We can do nothing in sugar-making without cold nights." I thought that the sap never flowed until an increase of temperature took place. State the facts in your Magazine, if you please; but give me the explanation by letter, or add it to the article. — *M. Philadelphia, March*, 16, 1837.

The circumstance attending the flow of sap from the sugar maple of the United States, so accurately detailed by your correspondent at Philadelphia, show, not only what is known from the experi-

ence of the manufacturers concerning the flow of the juice, but also under what circumstance the flow is more or less copious.

The movements of the sap of the maple are exactly similar to those of all other trees at the same season, or that are exposed to the same vicissitudes of weather. Why do not trees yield a flow of sap from a wound in summer? Because every drop absorbed by the roots in that growing season is required to supply the demands of the transpiring bark, leaves, and lengthening shoots, with their flowers or fruit; so that there is no excess to run out of a wound. And why does the sap not flow in winter? Because, in that cold season, it is inspissated; and the pores of the bark are then all naturally sealed. On the return of spring, however, the sap becomes fluid; and as soon as the buds begin to swell, an ascending current commences, and continues during warm weather, and is expended not only in enlarging the buds, but escapes imperceptibly and copiously through the porous bark. During this process, should a frosty night or "bracing wind" happen, the pores of the bark are shut up, and the sap accumulates within the vascular membranes; and if, when so collected and pent up, the tree be tapped, an abundant stream will issue out, and continue to run until the surcharge is exhausted, or until a warm state of the air causes a general evaporation of the juices from every other part of the tree, or lastly, until the flow becomes arrested by frost.

Thus, the quantity of sap is alternately scanty and copious, according to the temperature of the air, or as the tree has been more or less previously drained during the spring months; that is, during the period which elapses between the bursting of the buds and the development of the foliage.

That sap keeps ascending to, and accumulating on, the recently formed layers of liber and alburnum, when the juices in the bark are congealed by frost, may be inferred from what often takes place in America, and other northern countries, in very hard and long continued frost; namely, the largest and hardest timbers trees are rent asunder by the expansive force of the warmer sap, and elastic gases enclosed therewith. — *J. M. London, April*, 1837.

Art. VIII. *Miscellaneous Matters.*

Asparagus, grown in the gardens of private gentlemen, is often inferior to that raised by market-gardners. The superiority of the latter is caused by the greater richness of the soil in which it is raised. Market-gardners being under no control of masters, generally spare no expense in enriching their soil; and their beds are more frequently renewed. But gentlemen's gardners, not being always free to act as they judge most proper, are often without the means of improving the soil; their beds are frequently old, and the soil in them exhausted; when new beds are made, from the want of more materials, they are generally formed in the same way which prevailed fifty years ago. The soil is made good about 2 ft. deep, and laid out in beds 4 ft. wide, with paths 2 ft. wide between them; the plants being set in rows 1 ft. asunder. Treated in this manner, no asparagus will be fit to cut before three years; and by that time the beds will have become a mass of roots, and two or three years afterwards the soil will be exhausted.

To raise large asparagus, the soil should be made good to the depth of 5 or 6 ft.; then laid out in beds from 4 ft, to 6 ft. wide, with paths between them of the width of 2 and 1 half ft. The plants must be put in 2 ft. apart, and the stems not allowed to approach each other much nearer than 2 ft.; or beds 3 ft. wide, with one row of plants down the centre, and the plants 1 and a half ft. asunder in the rows would be preferable. It is a very common error to allow too many stalks to grow close to each other. If this be permitted, however good the soil, the asparagus is sure to be small; as the stalks, when so close draw upon each other. Weak and small stems produce invariably weak asparagus; for it is at the bottom of these that the asparagus springs.

Happening, lately, to take up some asparagus, which had been planted five years, I found the roots at the depth of 6 ft., in a poor sandy soil.—*London Gardener's Magazine.*

QUINCY MARKET.

[Reported for the Horticultural Register.]

APPLES, Russet,	barrel,	2 00 a	2 25
Baldwins,	do.	3 00	3 50
Pippins,	do.		3 00
Dried,	pound		5
BEANS, White	bushel,		2 00
BEETS,	do.		50
CARROTS,	do.		50
CRANBERRIES,	do.		2 50
DANDELIONS,	peck		20
HORSE RADISH,	pound		8
LEMONS, box 2 25	dozen		20
LETTUCE,	head		6 1-4
ORANGES, box 2 00	dozen		25
ONIONS,	bushel		2 00
PARSNIPS,	do.		75
PICKLED PEPPERS,	gallon		50
PARSLEY,	peck		25
POTATOES, common,	barrel		1 00
Chenangoes,	do.		1 50
RADISHES	bunch		6 1-4
SPINACH,	peck		20
SQUASHES,	pound	2	3
TURNIPS,	bushel		50
WALNUTS,	bushel		2 00

Boston, May 7, 1838.

ERRATA.

In the communication from Alexander Walsh, Esq., in March No. page 92, 16th line, it should read "former" instead of farmer; and in the same No., page 96, in bottom line, instead of "unsuitable dresses" it should read unsuitable winter dresses.

THE

HORTICULTURAL REGISTER

AND

GARDENER'S MAGAZINE.

JUNE 1, 1838.

Art. I.—*Monography of the Genus Camellia, or An Essay on its Culture, Description and Classification.*

(Continued from page 175.)

Section 3. — *Irrigation, and the kind of water most proper for that operation.*

It is a principle in horticulture, that exotic plants, with persistent leaves, and which, in our green-houses are in almost a constant and more or less active state of vegetation, according to the temperature of the air, require, even in winter, a certain degree of humidity, sufficient to afford aliment to the leaves and roots. This is not the case with exotic plants, which have caducous leaves; these plants during the time they are in repose, scarcely require any water. The Camellia being a plant with persistent leaves, likes almost a constant humidity, and especially in summer. Frequent waterings, during the hot season, powerfully contribute, to reanimate and sustain its beautiful appearance. But the second effort of vegetation having terminated, when the new wood is almost matured, which is generally the case by the middle of August, and the buds are formed then, until the period of the next florescence, the distribution of water becomes difficult and requires great attention; for the health of the plant chiefly depends upon the care with which this is done. Too little, or not enough humidity, has the like injurious effects. The roots either become dry or rot, the whole plant languishes, the leaves, buds and flowers fall off, and finally it dies. The first consideration then, is the knowledge of adopting the

proper mean between humidity and dryness, especially during the period that the Camellia remains in the green-house.

But what then, is this proper mean which is most congenial to the Camellia? What is the quantity of water which it requires? At what hour of the day should it be given? What kind of water is best? All these questions are of great importance, but easily resolved. We have said that, generally, the Camellia likes almost a constant humidity; but still there should not be given, a great quantity of water at a time; it is only essential to repeat the watering often, in order to keep the earth always in that state of humidity, which is sufficient to maintain the fermentation, but by no means so great, as to prevent it; which would inevitably be the case, if the water is too copiously supplied. As to the hours of the day, which are the most favorable for watering the Camellia, we can only say, they must depend on the seasons, and especially on the temperature of the external air. In the winter, whether the pale and feeble rays of the sun appear to gladden the sad and dreary aspect of nature, or that she is long deprived of them, as is most common, it is necessary during those short and cold days, to water this plant, between nine and ten o'clock in the morning, in order that the earth may have time to regain its heat, by permitting the evaporation of a portion of its humidity. If the Camellia is watered in the evening, the coolness of the night joined to that of the water, arrests the progress of the sap, and there being no evaporation, the fall of the buds is the inevitable consequence of such an untimely operation. In the summer, on the contrary, when the Camellia is in the open air, it should be watered in the evening, because the water contributes to maintain the coolness of the earth during the night, and the plant bathed in this congenial humidity, recovers from the absorbing effects of the ardent heat of the day.

It is not sufficient, however, to moisten the roots of the Camellia When the temperature of the green-house rises too high, which often happens, during the months of May and June,—for our advice is, to leave the Camellia in the green-house until the end of June,—the leaves of this plant require, that the salutary humidity in which they delight, should be given to them at that time, when they are exposed, in the shade to the open air. A syringe or hand pump is made use of, to cause the water to fall upon the leaves of

the Camellia in fine drops like a gentle shower of rain. The water should be of a medium temperature. This mode of watering, which is so beneficial to the Camellia, when it is in the green-house, in the latter part of the spring, is still more so, if it is frequently done in summer, when this shrub is exposed to the open air. We think it also very beneficial at this time to water the surrounding ground on which the plants stand, to restore to the air, a part of its elasticity, and to the plants those vapors from which they derive their ærial nutriment.

But although the waterings properly attended to, have a favorable effect on the vigor of the Camellia, yet if they are too long neglected, the contrary result is produced from the aridity of the earth in the pots, which is the consequence of such omissions. A too great dryness of the earth, attacks this shrub in its roots, and when that is the case, there are no means of arresting the evil. Peat earth, on becoming dry, is incapable of absorbing water, or if it permits its passage, it is only in the form of an infiltration, and does not take place except when the water meets no obstacle and passes through the pot, without refreshing the roots of the perishing plant. The Camellia, when the waterings have been long neglected, does not exhibit any symptoms of suffering, but is soon despoiled of its leaves; the wood becomes shrivelled and stunted, the buds fall off, and death speedily follows.

To restore the Camellia to life, when this evil is not incurable, it is necessary immediately to repot it, giving to it fresh earth, cutting it down short, and placing it under glass in a hot-bed, moderately hot, depriving it of the air and sun, and watering it very moderately and only by degrees; above all, do not soak the plant, with the ball of earth on it, in water, as is the practice with some gardeners; this sudden transition is very injurious, and will complete that destruction which the dryness of the earth had commenced. Another mode of saving the plant, is to put it in the open ground, under the protection of glass, where it more promptly acquires its primitive vigor.

The waters of fountains and wells, when they are selenitical or calcarious, and even those of rivers, as they are often charged in their course with various salts, are all injurious to the vegetation of the Camellia; and if any of them are used, they should previously remain exposed to the action of the sun for at least twentyfour hours.

hours. Rain water is preferable, and has a salutary influence on the health of the Camellia. Not being saturated with any of the saline principles, possesses the property of easily dissolving those salts which are contained in the earth in which the plant is placed, and are of the character which penetrate its tissue.

But the best waters for the camellia, are those of swamps, morasses and bogs, which have been continually exposed to the influence of the sun and air. These waters containing, in abundance, the principles of nutrition, especially when they are found mixed with the detritus of vegetable and animal bodies, which furnish a certain quantity of carbon and azote, act in a wonderful manner upon the voracious organs of the Camellia ; but these waters should only be employed in the summer, when the shrub is exposed to the open air. In winter, and when the plants are in the green-house, they should be moistened with pure water, which has remained for several days in a cistern, situated in a corner of the green-house.

SECTION 4.— *The removal of the Camellia from the green-house into the open air.*

The period of removing the Camellia from, and returning it to the green-house, as well as the exposition, which is given to it, during the summer, have a great influence on the health of the plant in winter. From the experience of several years, we have ascertained that the period when it should be removed from the green-house, is that, when it has completely finished its first growth,— when the new wood is ripe, and when the buds have all appeared, which generally arrives at the end of June. The Camellia does not like the full influence of the sun's rays, but on the contrary is pleased with a shady position and a free circulation of air. A northern exposure, where the first beams of the rising sun fall upon it, is the most eligible. If placed in a sunny position the buds are too rapidly formed, and the florescence is less beautiful, even if they are complete in their development. The same precaution is to be observed in removing the Camellia from the green-house, as with all other plants, which are there cultivated. The most important, is a shady and airy position ; the most congenial kind of protection from the sun is a live hedge or a range of cedars, (Thuya orientalis or Arbor vitæ,) placed from eight to ten feet apart. The latter have the advantage of offering, by their evergreen foliage, the most desi-

rable kind of protection, and have also a beautiful appearance, as by proper management, they can be made to form a sufficiently compact screen. With such a protected position, neither the injurious effects of the violence of the sun's rays, the winds, rain storms, or even the ravages of frost are to be feared.

We are in the habit of allowing to the Camellia, the advantages of such an exposition, until the end of August. Early in September, this plant should be exposed to the influence of the sun, during a greater portion of the morning, and even until near noon, and be so left, until it is returned to the green-house. This warm exposure confirms the last efforts of vegetation, consolidates the buds, and thus insures to the cultivator the pleasure he anticipated, as the reward for all the cares he had bestowed, on this admired plant.

The restoration of the Camellia to the green-house.— The heavy rains of autumn, which are cold and frequent, enervate the Camellia, and always render the success of a complete and satisfactory florescence doubtful. The plants should, therefore, be restored to the green-house as soon as the rainy season commences, and especially, as the nights become cold, although the days may still be warm, for this remarkable difference of temperature, is injurious to the shrubs and should, therefore, induce the amateur to restore them early in October, or later if the season is mild; and he should always select the most pleasant day, for this operation.

SECTION 5.— *The proper kind of green-house for the Camellia.*

The Camellia being a rustic shrub, it prospers sufficiently well in all kinds of green-houses; but to render its florescence abundant and beautiful, it should be kept in a medium temperature, and placed, as near as possible to the light. Those plants which possess great vigor, and are from six to seven feet in height, flourish every where, if they are not checked, by accidental circumstances, as is frequently the case, with those, which have a lower exposition. But the young plants, which have recently been produced by grafting, or which are not more than a foot high, as well as all the delicate and rare species, require a brilliant light to bloom well. It is true, that such a position offers serious inconveniences, and among others, a stroke of the sun in the spring, which at any moment may scorch and injure the health of the plants. But these accidents can be prevented, by extending daily, about eight or nine o'clock in the morning,

cloths over the glass and withdrawing them, as soon as the sun disappears from the green-house.

The double roofed green-houses, which are called *English* or *Chinese*, are excellent for small Camellias; but they do not present an agreeable appearance; still it is well to have one of them, to make the Camellia flourish, until the period it comes into flower, when it can be removed to the large green-houses.

The green-house for the Camellia should be furnished, like all others, with a stove or furnace, well built of masonry, the funnel of which should be of brick and of a square form, placed in the interior, against one of the walls;— that in front is most usually selected for the purpose. The entrance to the furnace should be on the outside, so that the fire can be attended to, without entering the green-house. This precaution is very necessary to prevent the smoke from being admitted, as its injurious influence is irreparable; the fall of the leaves and buds being the immediate consequences.

The confined heat of the green-house produces a vapor, which attaches itself to the ceiling, glass and walls, where it is condensed and falls in drops upon the plants. This concentrated vapor, is injurious to the Camellias which receive it, if they are suffered thus to remain, for any considerable time. In order to promptly remove it, it is useful, when the exterior atmosphere will permit, to open some of the sashes, and kindle, at the same time, a fire in the furnace, to temper the fresh admitted air. If this mode is impracticable, in consequence of the intensity of the cold, it must be attempted to remove the moisture, where it is collected on the glass, by the use of cloths, fastened to a staff. When it is necessary to keep up the fire for a long time, on account of the cold, it must not be forgotten to water the Camellias, which are near the furnace and funnel, and even all the others, if it is requisite; for if the earth becomes too dry, it causes, as we have experienced, irreparable disasters.

SECTION 6.— *The ventilation and temperature of green-houses.*

The air being one of the most indispensable elements, to the prosperous condition of plants, it is requisite that it be temperate and circulate freely in the green-house. An active, dry and cold air is injurious to the Camellia; while a humid and warm air is favorable to its vegetation. A thermometer, therefore, should be placed in the green-house to regulate its temperature; and although

the Camellia may be exposed to some degrees of cold, without suffering; still to render its florescence certain and perfect, it is necessary that it should enjoy a temperature, of from 45 to 50 degrees of Fahrenheit's thermometer.

As long as the exterior atmosphere, is near those degrees,—which should be indicated by a good thermometer exposed to the north in the garden, the doors and sashes of the green-house may be left open; but they should be carefully watched and shut as soon as the external temperature descends to only ten or twelve degrees above the point of congelation.

It is useful to give air to the Camellias every morning, even when the weather is a little cold, if the sun is bright above the horizon. As the leaves of the Camellia, present quite a large, shining, porous and slightly humid surface, they attract the dust, which is continually circulating in the green-house, and soon become covered with it. These foreign bodies prevent the exercise of their absorbent functions, or rather, obstruct the pores, which are destined to inspire the surrounding nutritious gases, as well as to expire those which are disengaged from the plant. It is therefore necessary, that from time to time, during the winter, this dust should be removed from the plants. The following are the modes of doing it.

Some persons wash the leaves with a piece of sponge; but while the sponge, if it is not continually cleansed, absorbs the dust of the leaves, and communicates it to those to which it is successively applied, it also leaves a little humidity on them, which immediately collects the dust again.

The best method is, to use a small piece of fine and dry linen, or cotton cloth with which the leaves are to be lightly and carefully rubbed; they immediately acquire all their natural lustre and present a renewed appearance of health and vigor.

While the Camellia is in the green-house, and even when in the open air, a kind of moss, which is often produced by the quality of the water used in irrigation, is formed, which covers the superior surface of the earth in the pots. It is, therefore, necessary, when the plants are removed from, or restored to the green-house, that this moss should be carefully taken off, and with it as much of the earth as possible, which is to be replaced, with such, as has been prepared, for the purpose, in the manner, that has been described, and which has a vivifying effect on the plants.

SECTION 7.— *The insects which are injurious to the Camellia.*

The Camellia is attacked, both, when in the green-house, and exposed to the open air, by several small insects, which are the *aphides*, (plant lice,) *formicæ*, (ants,) *kermes*, (a small beetle of the coccus genus,) *cochineal*, (also a beetle of the coccus genus,) &c.

It is not an easy task to destroy these various kinds of insects, and the process we shall describe requires great care and attention.

The Aphides are developed early in the spring; they attach themselves to the most tender shoots, and cover them so completely, that the bark seems to have changed its color; and are constantly pumping the abundant sap, with which the young branches are filled, and they consequently languish. The leaves fade and soon perish, if the insects are not either removed by the cultivator, rains or certain winds which are fatal to them. They are readily destroyed by burning tobacco in the green-house, washing the infected branches with soap suds, or, what is still better, crushing them with the fingers.

Although it is said, that the formicæ live at the expense of the aphides, we believe there are some of the species, which are nourished by the tender twigs of the Camellia; besides, their numerous progeny is very inconvenient, especially when they form their habitations, as is sometimes the case, in the Camellia pots. Green-houses can be readily cleared of these insects, by partly filling small phials with honey and water, which they are thus induced to enter, in vast numbers, where they are drowned.

The Kermes,— commonly called the orange-bug, which is often seen on the leaves and bark of the young branches, and the cochineal, which attaches itself to the new shoots, and in the axils of the young leaves, draw out all the sap. These enemies are to be destroyed, by visiting the Camellia often, early in the morning, and crushing them with a small flat piece of wood.

Earth worms, easily enter the pots, disturb the roots and decompose the compost. The method of preventing them from entering the pots consists, in placing a piece of slate under each, supporting them on planks, or making a bed of fine gravel, or river sand, two or three inches thick, on which they are to stand.

When these worms are in the ball of earth, which surrounds the roots, and they cannot be extirpated, by removing it from the pot,

they may be compelled to leave it, by watering once or twice the roots with a slight decoction of tobacco. We have employed, with success, a very slight solution of quick lime: but this method, if it is not performed with great precaution, will completely destroy the most delicate roots, when the plant inevitably perishes.

SECTION 8.— *Florescence of the Camellia and manner of forcing it.*

The natural epoch of the florescence of the Camellia is, generally, from the month of December, until the end of March. Still, by an artificial culture, to which it readily yields, if it is desired to calculate the phases of its vegetation and follow its progress, plants may be made to bloom, in succession, from the commencement of September, to the end of April. The best course to be pursued, to insure success, in this extra-natural culture, is as follows.

When it is desired, that a plant should bloom in September, its vegetation should be excited, at least a month earlier than common. For this purpose, in the month of February, the plants, which have not any flower bud, and which are in a vigorous and sufficiently forward condition, should be selected and repotted, in the manner which has been described, if it is necessary, and then placed in a position, where the heat can be augmented, in order that they may by this artificial means commence vegetation promptly and finish their first growth, a month sooner than usual. They are to be removed from the green-house, by the end of May, instead of the close of June and placed in a less shady exposition, than is the general custom.

In April, the plants which give indications of blooming, should be retained in a green-house, which must be ventilated, during the day, but closed at night; and they must be protected, against the solar rays, by means of cloths, or light mats, and kept in a uniformly temperate and equal atmosphere. In proportion as the exterior air diminishes in temperature, that within must be elevated. By this mode of culture, if it is well conducted, abundant and beautiful flowers will be obtained, in the month of September. Besides those plants, which are ready to bloom, may be placed toward the end of this month, in a hot bed which is kept moderately warm,— care being taken to screen them from the sun, and give them air in the day time, and they will continue to bloom in succession.

When it is desirable to retard the florescence of the Camellia, all

the operations which have been described, are but to be performed a month later, to make them bloom naturally; and by the means of a less elevated artificial atmosphere, but which, however, is constantly equal, the development of the flowers may be retarded for several weeks.

SECTION 9.— *Means of preventing the buds from falling off.*

To prevent the fall of the buds,— a natural desire of the horticulturists—and induce the Camellia to bloom abundantly every year, it is necessary to attend constantly and in the most faithful manner to its culture, especially from the time of repotting, to the development of the flowers. We shall not repeat, what has been said upon repotting, but add: first, that it is indispensable, immediately after that operation, to keep the Camellia in a temperature, of from 58 to 65 degrees, during the day, and from 54 to 58 in the night; second, that as soon as the young shoots have terminated their development, during which they are still in a herbaceous state, it is requisite to increase the heat of the green-house from 68 to 77 degrees during the day, and from 58 tc 65 in the night. This augmentation of temperature, causes the buds to appear more readily, in greater abundance, and more vigorous. We have observed, that if nature is not aided, at this period, by an increase of heat, the new shoots, being left in a too low temperature, are suddenly checked and become hardened, before their natural maturity is completed. In this conjuncture, the development of the buds becomes more difficult, in consequence of the hardness of the wood, and is not effected until a later period; they are often, from this cause, less numerous, and very imperfect; and besides, they fall off, on the first change of temperature. It is probable, that this fatal accident is in consequence of their no longer receiving that lacteous nourishment, from the herbaceous shoots which contributes so powerfully to produce, and firmly attach them to the branch, which they are destined to embellish, at a later period.

When the buds are perfectly formed,— which is, as has been said, in about three weeks after the first effort of the plant to throw out new shoots— care must be taken, to diminish, gradually, the heat of the green-house, until the period, when the Camellias are removed into the open air; which is usually towards the end of June.

Finally, being placed in its summer exposition, the Camellia

demands the strictest observance, of all those directions, which were given in the fifth section.

But those directions, however well attended to, will not prevent the fall of the buds, if it is neglected to keep the plant in *a uniformly equal temperature*, of between 47 and 50 degrees during the day, and 43 and 45 in the night, from the first of October, until the end of March. We designedly insist upon the necessity of a strict attention to this uniformly equal temperature, because, that in fact, whether the Camellia is kept, during the rigorous season, in a constant temperature of but from four to six degrees above the freezing point of 32, by only permitting the heat to be augmented by the exterior atmosphere; or whether the temperature of the green-house is always maintained up to between 54 and 60, this double difference, remaining constantly the same, cannot in either case be injurious to the florescence. In the first it will be only later and in the second more precocious; but if, in the last hypothesis, the artificial heat, is, for even a short period, too violent, in consequence of the furnace being badly managed, the plant will bloom well, it is true, but, not having enjoyed a constantly uniform temperature, in the green-house, up to the usual period of its removal, it languishes, loses its leaves, and often, it is not in the power of the horticulturist, to prevent it from perishing. Such is the fate of the forced Camellia, which are destined to decorate our saloons in winter, and furnish the tribute of their brilliant flowers, during the season of magnificent entertainments.

An equality of temperature is therefore, essential, for the preservation of the buds. A too sudden change, whether it arise from the momentary introduction of cold air into the green-house, at the time when the heat is up to from 54 to 60 degrees, or from a too great elevation of the temperature, to from 60 to 65, too suddenly introduced, when the thermometer, indicates but 32 degrees; both of these sudden and violent transitions produce the same results,—the fall of the buds: the reason appears to us evident.

When the buds are near expanding into blossom, a mild and continued heat causes them to advance rapidly, the vegetation of the Camellia, being then confined to only this part of the plant. If then, to an excessive elevation of the atmosphere, there succeeds a considerable reduction of the heat, the sap, operated upon by this sudden change, is checked; the buds no longer receiving nourishment, as abundantly as before, they become dry and fall.

A physiologist cannot fail to notice, with deep interest, how powerfully the heat and cold, instantaneously acts, upon the buds, when they have reached a certain degree of development. The slightest difference of temperature affects them considerably.

The necessity then, cannot be too earnestly insisted upon, of keeping the heat of the green-house, at all times very near the same degree of elevation. In the spring, this regularity is less necessary, because there is nothing to be feared from such sudden transitions, and the solar heat is daily increasing; but, in winter, the atmospheric variations, being so frequent and instantaneous, and the life of the plants being confided to artificial means, it can be easily conceived, that much greater vigilance is necessary to regulate, according to the circumstances, the temperature which they require.

To act in conformity to these established principles, it is necessary to have two thermometers in the green-house, one being placed on the rear and the other on the front wall, and to examine them attentively several times every day. When the temperature falls as low as 38, the doors and sashes should be immediately closed; and if, notwithstanding this precaution, the thermometer does not indicate a proper heat, a little fire must be kindled in the furnace; but care must be observed not to elevate the temperature either too suddenly, or too high; from 38 to 41 degrees of constant heat is better than 54 which is irregular and interrupted. We do not open our doors, only when the exterior air is of a congenial temperature, or when the sun shines on the superior sashes of the green-house, and the interior heat has arisen to from 50 to 54 degrees. It should be recollected, that this plant is like a watch, which requires to be daily wound up, by a regular process and not at various times and by jerks.

We have seen the buds fall, within fortyeight hours from a hundred beautiful Camellias, which were enclosed in a green-house, in consequence of the temperature of 60 degrees, to which the plants had been accustomed for many days, having been allowed to fall as low as 38. It can readily be conceived, that such an extraordinary change of temperature, should disorganize the ascending progress of the sap, and cause the most fatal consequences.

Finally, to prevent the buds from falling, there is still another very simple method, which was made known to us, by the late M. Cels, and which we have practised often with success. It consists

in placing the Camellia filled with buds, upon a moderately warm hot bed, four feet broad and three feet in depth, covered with a glazed sash, and put in fermentation by fresh horse manure, or dry leaves, well pressed down. The manure should be put in the interior of the bed for the evaporation produced by these confined substances, is injurious to the florescence. The Camellias when placed in this hot bed, are managed in the same manner, as those in the green-house; that is, giving them air, whenever the exterior temperature will permit, and covering them with mats during the night; if it freezes, the coverings are doubled and kept on until there is a change to mild weather. The air is then gradually admitted and they are moderately watered. In relation to this subject we can relate a sufficiently curious fact.

We saw, in the rigorous winter of 1829 and 1830, M. Cels, confine, under the sashes of a hot bed, which were covered with mats and straw, the most beautiful white and striped Camellias in full bud, and leave them thus deprived of air and light, during the whole winter, and when the hot bed was opened, although the humidity poured out in clouds and seemed to drown the plants, nearly all the buds were uninjured, perfectly fresh, well nourished, and some of them beginning to bloom, and all of them in a few days were admirably developed.

It is here proper to mention some varieties of the Camellia, whose buds expaud into blossom with difficulty and but very rarely, in consequence of the multiplicity of the petals, which are contained in them: they are the Camellia *Dorsetti, Woodsii, gigantea, Chandlerii, Rex Georgius, Florida, &c.*

The buds of these plants often only half open, and sometimes even less; they remain in this state for several days, and finally drop off.

If these buds are opened after their fall, a certain quantity of water is found collected in their calyx, and their central petals in a state of decomposition. To this stagnant humidity it is most probable may be attributed, the destruction of the vegetable energy of the short peduncle which sustains the bud, and whose putrefaction occasions its fall.

This examination has induced us to attempt a particular mode of obtaining a regular florescence of these varieties of the Camellia; and the experiment having succeeded two years in succession, it is

now made known for the benefit of amateurs. We placed, during the winter, several of these varieties, and especially the *Woodsii* and *Dorsetti*, in a very airy, light, dry and sufficiently cool situation; the number of buds were reduced, that there might be more sap and vigor for those which remained; the plants were kept in a low temperature, for the purpose of retarding the growth and development of the buds, until the season of pleasant weather was so far advanced, as that the natural heat of the atmosphere became both more equal and active. At the close of the winter, these Camellias were removed into the green-house and placed in the most favorable position, where they were watered frequently, but only a little moisture was furnished at a time. In the spring, all these plants developed their buds easily, and presented a magnificent florescence. We invite all amateurs to repeat this experiment and request them to inform us of the result.

SECTION 10. — *The management of Camellias in private apartments.*

The Camellia is such a pleasing and elegant plant, that every one is desirous of decorating their saloons with it: but these positions being too warm and unhealthy, the vital principle of its organization is deteriorated, and it soon perishes.

We have thought, however, that this flower might be enjoyed for a long time, in private apartments, if it could be isolated from the influence of the fire and the mephitic exhalations of the human body, by the means of glass. Place, for example, some shelves, like steps, against one of the walls of the room, on which may be stood pots containing several varieties of the Camellia in bloom, and, enclose these steps in a glazed frame. The plants would not suffer in such a secure position, and the flowers would have a most interesting and pleasing effect. Attention will be requisite, to give them air, in the morning, before the fires are made in the room; and when the florescence has ceased, they should be replaced in a green-house or what is still better, in a glazed hot bed.

Camellias in bloom, might be enclosed between double windows prepared for that purpose, when the thickness of the walls of the house is such as to allow sufficient space; and if the aspect is a southern one so much the better. The flowers and the verdure would be very brilliant in such an exposition, as they would be

completely protected from the dust, and besides the plant could not be injured by its removal from the green-house into a habitation so favorably situated, for the complete preservation of its health.

SECTION 11. — *The cultivation of the Camellia in unconfined earth.*

The Camellia, when placed in unconfined earth, whether in a conservatory, green-house or a hot bed, grows rapidly and in a few years becomes very much extended, and blooms easily and abundantly; but if attention is not paid to having a proper drainage, to allow the water to pass off from the roots, or if it is entirely deprived of the contact of the open air,—especially in summer, the earth in which it is planted, is deteriorated, the roots putrefy, the plant is stripped of its leaves, and perishes.

To avoid this sad result of negligence, it is essential, before transplanting the Camellia into unconfined earth, to prepare the soil where it is to stand, in such a manner that the water shall not remain stagnant around its roots, which can easily be done, by first placing at the bottom of the space, where it is intended to set out the plant, some gravel, and over that a few inches of sand; and it is also advisable to put over the sand, the roots and vegetable substances which have been separated from the peat soil, when preparing it for filling the pots. The Camellia being thus set out, great care should be taken, to afford it a free circulation of air in the summer, and especially a humid atmosphere; and for this purpose, the sashes should be left open every pleasant night, to enable the plant to enjoy the refreshing dews, during that season; and it will also be beneficial to the plants, to renew the earth which surrounds their roots, every three or four years.

The Camellia placed in unconfined earth, without protection, is not capable of resisting, a temperature lower than from 38 to 41; consequently it would be a useless experiment, to attempt, in the climate of Paris, to expose it to a greater degree of cold. If the winter should be mild, it may be preserved, beyond a doubt, vegetate well during the summer, and offer a beautiful appearance in autumn; but the frequent variations of the atmosphere, at that period, would cause the buds to fall off.

In warm climates, in a northern exposure, where it can be screened from the sun, and in a soil which is congenial, the Camellia

would become a magnificent tree, and present, at the time of its florescence an enchanting aspect. This prospect can be enjoyed at Caserta, near Naples, where there is cultivated, in the royal domains, a Camellia, which was planted in 1760. It is more than 40 feet high, and occupies, with its lateral branches, a space more than twenty feet in circumference. It is covered with thousands of blossoms n the spring, to which succeeds an abundant fructification, affording the means of infinite multiplication. We have often visited that admirable tree, and to perpetuate the recollection, we designed and colored it upon the spot, with all the exactness, which our feeble powers would allow. We presented the original painting to our master and honorable colleague, Mr De Candolle, the elder.

Section 12.—*Pruning of the Camellia.*

There are but few exotic plants, which bear pruning, as well as the Camellia; and by performing this operation with intelligence and at the proper time, it assumes the form, which it may be desired to give it, and blossoms most abundantly. The periods for pruning are, either the spring, immediately after the florescence, or in the summer, after the second growth; that is, about the middle of August. If the pruning is performed in the spring, it is necessary, immediately after that delicate operation, to carefully repot the shrub, place it in a green-house, where there is a considerable elevation of temperature, to induce it to throw out its new branches vigorously and in season to get well ripened before the cold weather commences. If the plants are pruned in August, it becomes requisite to sacrifice the existing buds, and a year is lost, before the blossoms can be enjoyed; for at this epoch the vegetation of the Camellia, is disposed to repose; but the after growth in the spring, which succeeds the pruning, will be much more vigorous, and the new branches with which the plant is supplied, will begin to bear buds the second year.

Besides, the Camellias which are pruned in August, may remain in the open air until the common period, when all the plants are returned to the green-house; but those which are pruned in the spring, require to be put in a glazed hot bed, immediately after that operation, as has been before said; for without this precaution, they vegetate but slowly, and produce only small and feeble shoots, which do not blossom for several years.

SECTION 13.— *The multiplication of the Camellia.*

The Camellia is multiplied in three manners: by the seeds, cuttings, or layers and grafts.

By seeds.— The seeds are planted, in a hot bed, under glass, in a peat soil, which has been passed through a sieve. The seeds which are sown, should have naturally arrived at maturity, which is easily known, by their falling spontaneously from their hard pericarps. The bed should be lightly covered with moss, to keep up, continually, a slight humidity. The seeds often remain two years before they vegetate, but sometimes the young plants appear the first year. As soon as the plants have attained about two inches in height, they are to be taken up, with a small ball of earth attached to each, and put into separate little pots, which are to be arranged in the same hot-bed, and protected from the air and sun, until they are in a state to bear exposure, when they are to be managed in the same manner as has been recommended for Camellias generally. At the expiration of five or six years, nearly all of these individuals, are in a flowering state; some of them, however, do not blossom for twelve years, as we have experienced. Seeds of the Camellia which were gathered in 1819, from the celebrated tree at Caserta, did not bloom until 1831, and we have two plants, which were produced from those seeds, that flowered for the first time in 1836, which was more than fifteen years after they were planted.

To induce Camellias, obtained from the seed, to bloom promptly, they must be grafted as soon as the wood is sufficiently matured, which is in their second or third year. This should be done only on the most vigorous plants, to render the florescence more certain and rapid.

By cuttings.—This method is employed to obtain free stalks, but more often to procure subjects for grafting; and the *single red* or *pink* are usually selected for this purpose.

The following is the most simple manner of performing the operation.

In the spring, the shoots, of the preceeding year's growth, are selected, from the single, or semi-double Camellias, which are divided into cuttings, from four to six inches in length; these are set out together a few lines distant from each other, in pots filled with peat soil, which are plunged in a pit of tanners' bark and covered with a

hand glass, or placed in a shaded position of the green-house; from time to time, it is necessary to raise the hand glasses, and wipe off the interior humidity, and occasionally moisten the cuttings, with a little watering pot, made expressly for the purpose. Cuttings thus managed take root, in about six weeks, and when the roots are sufficiently developed, they are transplanted into small pots, where they remain until large enough for being engrafted. The Camellia can thus be multiplied by cuttings, in green-houses, which have no artificial heat, and without the aid of tan; but the process is too long and often uncertain.

The Camellia can also be multiplied by layers; but horticulturists have generally renounced this mode of operation, because the subjects thus treated, take too long a time to root, occupy too much space in the green-house, or hot-beds, besides requiring the sacrifice of the most beautiful branches; and the result is not in proportion to the labor, time and expense, which it occasions; grafting, therefore, is the expedient of multiplication, which every where prevails.

Section 14.—*Different methods of grafting the Camellia.*

Grafting.—The Camellia, which it is desired to multiply, is generally grafted upon stocks of the *single red* variety, or any other single or double kind, may be selected, which can best be spared for that purpose. There are now several modes of grafting; but we shall only describe those which are most generally practised, and especially that, which the Belgians most commonly employ, to propagate the new and most valuable varieties.

Grafting by approach, or Inarching.— The kind of grafting most used, the easiest to perform, as well as the most natural and most ancient, is certainly that called inarching. This mode which can be practised at all seasons, is, nevertheless, most commonly performed in March.

In performing the operation, a lateral cut or slit is made in the stock, so as to form a kind of tongue, or a portion of the bark and sapwood is removed, an inch, or an inch and a half in length, and as low as possible. The same thing is done on the branch of the Camellia, which it is desired to obtain. The parts thus prepared are carefully united,—precaution being taken, that the barks of both exactly coincide, and they are confined with woollen yarn,

hemp, or strips of bass-wood bark, which have been first moistened. In a few months the parts are united; but the portion of the branch of the Camellia, which is united to the stock is gradually separated, by incisions made at intervals, of from eight to ten days, in the following monthly order. Camellias, inarched in March may be separated in August, and those on which the operation is performed in May, in October; being cautious to commence the incisions a month before.

Cleft Grafting.— This is the common mode of grafting, which every body understands, but which was not practised on the Camellia, until the immense results were made known, which our excellent friend, Mr De Soulange Bodin obtained, in his grand establishment at Fromont, near Ris. That learned and skilful horticulturist made use of this method, in preference to all others, because, at all seasons, it can be performed, by the aid of the artificial means which is specially used, to excite a flow of sap in the plants, and cause them to vegetate. Mr Soulange Bodin has substituted this kind of grafting for that of Belgium,— an account of which we shall give hereafter; it offers the same advantages, namely, economy of time and material, and probably more certainty in the results. By the employment of this ingenious method, a small twig of the species, which it is desired to multiply, having on it a single bud, and grafted on a congenial stock, produces, in six weeks, a complete shrub.

Mr Soulange Bodin calls this the *stifled* graft, because the plants, as soon as they are grafted, are put in a very warm bark-pit and covered with a bell-glass, where they have the appearance of being stifled.

Those who say, that this mode of operating, injures the root of the stock, while it is subjected to the very elevated heat of the hot bed, are completely deceived. We have had, in our possession, many Camellias, which were grafted in this manner several years since, and we have never perceived any disease in them which could have arisen from that cause. We will cite a characteristic fact, in support of this assertion. In January 1830, having made an excursion to Fromont, we selected and brought back, during intensely cold weather, against the advice of the proprietor, and the gardener of that establishment, a dozen little Camellias, which had been grafted according to the above named process, and recently

removed from the hot bed. In spite of all our precautions, we found the earth in the pots entirely congealed on our arrival. Still hoping to save them, notwithstanding this fatal accident, which was solely occasioned by our obstinacy, they were carefully kept, the whole of the winter, in a mild and uniform temperature, and in the spring, we had the pleasure of seeing the whole of our Camellias vegetate vigorously, as if nothing had happened. If the manner in which my friend had treated these young plants, had been pernicious and injured their roots, and especially when the severe cold to which they were subjected was added to that cause, they must inevitably have perished, without the possibility of redemption.

The Belgic Graft.— This is a lateral mode of grafting, to which the Belgians give the preference, and is performed from spring until autumn. This is the method of operation. A portion of the bark and wood is cut from the side of the stock, and as low as possible, in the same manner as for inarching. A small scion of one or two inches in length, with one bud and a single leaf on it, is taken from the Camellia, intended to be multiplied, the end cut sloping, on one side only, like a wedge and so placed on the stock, as that the barks of both shall coincide, and then secured with woollen yarn.

When this operation is completed, the pot containing the engrafted stock, is placed upon its side upon an unheated bark-pit, or dry moss, on which, however, the branches only should rest; then the grafted part is immediately, hermetically covered, with a bell-glass. At the expiration of fifteen days, the graft is perfectly united, and in three weeks, at the farthest, the plant is ready for sale.

It is superfluous to remark, that this graft, during the whole time that it remains under the bell-glass, to form the desired union, should always have the protection of a green-house, if the operation is performed in the summer, and of a glazed but unheated pit, if at any other season.

Inarching — by a cutting.— Heretofore, in uniting the graft to the stock, it was planted like a cutting, near the root of the stock, and a result was produced, very nearly like that which is obtained by the Belgic graft; but this mode of operating, requiring a branch of a certain length, the same number of plants cannot be obtained from the parent Camellia; but still, this mode, as well as that of the Belgians, is economical and expeditious.

ART. II. — *The Cultivation of Truffles, or Instruction for artificially raising and making large Plantations of Black and White Truffles, in Woods, Shrubberies, and Gardens.* By ALEXANDER VON BORNHOLZ.

Introduction.— Ripe truffles, freshly taken up are more different from those that are dried, dipped in oil, wrapped in waxed paper, or preserved in glasses, which the Italians and French sell us for German gold, than a beautiful Borsdorfer apple is from slices of a dried apple. Neverthless the best in the woods of Germany are not dug up, and not unfrequently, either from ignorance or the avarice of those that deal in them, bad and useless sorts (such as the swine-truffle) are mixed along with the edible ones. Every admirer of truffles (and who is not such, when he has once tasted perfectly ripe ones?) will rejoice to learn that they may be, and have been, raised upon situations adapted to them, as well as mushrooms; and that the planting of them is neither expensive nor troublesome. Every one who has a proper situation for them on his estate, will most willingly make plantations of them according to the directions here given. At a small expense, he will augment at once the pleasures of his table, and also his income; for in a few years the crops will have so increased, as to enable the planter to offer them for sale. He will then not only receive back his first expenses, but also a considerable surplus. There is no reason to apprehend that truffles will, by means of numerous plantations of them, sink in value (as almost all productions of landed property have done,) so as to be hardly worth any thing; since most of those who buy truffles dwell in large towns, and are so engaged as to have no time to raise them. On the contrary, by the extension of the cultivation of truffles, the money now paid for them to foreigners would be spared to our country, at which every sincere lover of it would rejoice; and the consumption of the article would probably be very greatly increased. We may confidently expect an active participation in extending the cultivation of truffles, from the exertions of our horticultural societies. By this extension, not only will the profit of land be increased, but also the pleasures of society, as these are more promoted by delicacies for the table than by the rarest flowers.

Among the various species of fungi which man has applied to his

nutriment, the truffle is of the greatest value. Morels are much inferior to it. Even the highly esteemed cultivated mushroom is not to be compared with it, still less are other edible fungi. With connoisseurs it is in higher estimation than the pine-apple amongst fruits, and oysters amongst bivalves. The high estimation in which truffles are held, and their dearness, are not however occasioned by their peculiarly fine aromatic flavour alone, but by the difficulties which are connected with seeking them in woody situations. Dogs must be broken in, or swine must be accustomed to discover and turn them up; and only a few people understand the art of accustoming these animals to resist their natural voracity, and to leave to man the food they have discovered.

On this account, the truffle in Germany, appears only upon the tables of the wealthy, and of those who have large landed possessions; in which they seldom cause truffles to be sought for, but buy them at a high price from foreigners. Truffles grow in several woods; but people avoid the trouble of either digging them up, or of training dogs and swine, to enable them with facility to take them out of the earth. German truffles are left as food for worms and for swine, and people are satisfied with such as the industrious French or Italians have sought out in their own country, and have sent abroad as merchandise.

As truffles are produced in woods, the proprietors of woods are the only persons that are entitled to cause them to be dug out. Only a few proprietors of extensive landed property or of large gardens possess woods, or, even if they have such, the soil of the wood does not possess such a mixture of earths as this species of fungus requires for its production and growth. It cannot therefore be produced, and the proprietor of landed property is compelled to purchase fresh truffles elsewhere; or, since they grow only in few places, and are generally sold to favorites, must accommodate himself with such bad ones as are offered for sale.

The relish of the truffle arises from very fine matter, which is so volatile that it rises through the strata of earth, and betrays at the surface the deeply hidden fungus to certain animals endowed with an acute sense of smelling. In order to preserve this volatile matter from escaping, those truffles which are intended for sale by the French and Italians are preserved or marinated, enclosed in glasses from which the air is excluded, or dipped in oil, and then wrapped

up in waxed paper. Notwithstanding all these contrivances, this valuable matter cannot be completely retained; and the bought truffles are as much inferior to fresh ones that have been lately dug up, as asparagus pickled or dried for winter consumption, or the beans and peas preserved in the same way, are to the same fresh vegetables cooked in spring and summer.

It must be very desirable to every proprietor of lands and gardens to become acquainted with a practice by which he can raise truffles himself. By such means the pleasures of the table will be enhanced, or, if he should prefer it, the profit of his landed property will be increased by the sale of fresh truffles. It is long ago that the great advantages which such cultivation would produce have been perceived; and in the last century many attempts were made, although fruitlessly, to transplant and cultivate truffles. How, indeed, could it have been possible to transplant, with the requisite skill, a fungus, the nature of which was totally unknown, and the circumstances under which it was possible for it to arise and thrive were not attended to?

Whether truffles, as fungi in general, should be ranked amongst plants or animals, was a disputed point; but now the conviction is, that they belong exclusively to neither, but stand in the midst between the two kingdoms, and incline equally to both. They are not propagated by seeds, as was formerly believed; but are formed in the upper strata of the earth, as hydatids in animal bodies, or the infusoria, visible only to the eye that is assisted by a microscope, in water that contains organic matter. Since no man either has seen, or can see, the seed of fungi, it was assumed to be so small as not to be visible even by the assistance of the best microscope. This seed, then, must have filled the air, and laid hold of every small place which made the germination and increase of the young plant possible. Such a supposition was admissible in the case of those fungi that grew in the open air, but impossible with regard to those which were found in the earth. How, in this case, should the fine seed escape out of its closed grave, drawn forth by the attracting powers of the soil, and be carried to distant places to produce in them new truffles?

The error, however, was the occasion of trials, which, being founded upon a wrong supposition, could not be attended by a successful result. In order to cultivate mushrooms and truffles, old

fungi were dug up, and planted in the places destined for them, to shed their seed, and be the origin of a new race of fungi. Peculiar care was bestowed upon truffles: they were cautiously dug up from their ancient place of growth, and taken to the new soil, which, however, was neither properly prepared, nor the mixture of earths given to it which was requisite to the prosperity of the fungus. It then appeared to be inconceivable, why, with all this attention, the experiment failed; and the old truffle soon died, without leaving any successors. It was expected to scatter seed in the soil, but had disappeared without leaving a trace behind it. Was the proceeding here observed at all different from cutting a hydatid out of one animal, and inserting it into another? or causing an intestinal worm to be swallowed, and then imagining that the minute animal should be increased in its new situation?

The hydatid and intestinal worm are not produced by transfer, but by such changes taking place in the mixture of the component parts of the animal bodies in which we find them, as to occasion that species of worms to be produced and thrive. We sometimes find newly born, and even unborn, animals inhabited by worms, which, nevertheless, are not transferable. Other animals, on the contrary, are free from worms to the extreme of old age; for their bodies present not to these worms such a habitation as is requisite to their thriving. Just in the same manner fungi, viz. mushrooms and truffles, which are very obstinate in their choice of situations (habitats,) arise and thrive only under favorable circumstances, in a soil suitable to their nature.

Many attempts failed before it was known how to raise mushrooms upon places where they were wanted, and yet this fungus is not near so delicate in its choice of a habitat and mixture of soil as the truffle, whose artificial increase was not successful. The secret of raising the mushroom upon places that were assigned to it, was only comparatively recently discovered in Italy. Without being able to give any exact account of the grounds upon which the experiments were made, the object in view was obtained by means of several experiments. The preparations that were made, and in general, the whole procedure, were imitated in France, and succeeded. The raising of truffles would be still easier in Germany; since here the proceeding might be commenced with proper views of the nature

of the fungus, and of its manner of originating and formation: its proper treatment could, therefore, be easily pointed out.

There are several kinds of truffles, which must be critically known and distinguished by any one who proposes to lay out a situation for this species of fungus. Without this, the planter would be exposed to the hazard of planting bad and useless kinds, instead of the good and eatable ones. To enable him to avoid this, the following description of the different kinds will be useful to most readers :—

Linnæus and other ancient botanists comprehended all the different species of truffles under the genus Lycopèrdon, which is said to be distinguished from the rest of the fungi by having a round body filled with powdery seeds. The lycoperdons have, while alive, a fleshy body, with veins running through it, which, by means of absorbing organs, like roots, either draw their necessary nutriment from the earth, or sit upon plants and rob them of their juices. For example, to the first division belongs the commonly known puff ball (Lycopèrdon *Bovìsta;*) and to the last, the grated puff ball (Lycoperdon cancellátum,) upon the leaves of the pear tree. When dead, the inside of the body, of most kinds, quickly becomes an extremely fine dust, which, for a considerable time, is included in the dry, more durable, paper-like external skin. Formerly, in this fine dust the seed was looked for; and it was supposed to be carried by the winds into very distant districts. This belief was so strong, that it could not be shaken by all the unsuccessful attempts which were made to raise young fungi by sowing the supposed seed.

Later botanists have separated the family of such lycoperdons as grow within the earth from the two other kinds which grow upon its surface, and have raised them to a separate genus, under the name Túber. The latter differs much more from the former, than the cherry does from the plum, or the bean from the pea. The new genus includes many species, though not all of them; especially those which grow in deeper strata of earth are sufficiently known to be distinctly different. The following are the only ones that are accurately known :—

1. *The true truffle* (T*úber gulònum*, T. *gulosòrum*, *Lycopérdon* T*úber* L. T*uber cibarium*, Sibth.)—Of a round form, more or less approaching to that of a sphere, or of an egg, or sometimes kidney-shaped, and somewhat rough with protuberances. The color of the

surface is, when it is young, whitish; but in those that are full grown, it is either blackish, or a deep black. The color of the inside is whitish, with dark blue and white, grey, reddish, light brown, or dark brown veins, of the thickness of a horse-hair, which are usually variously entangled, and which form a kind of network, or mat. Between the veins are numerous cavities, filled with a great deal of mucilage and small solid grains. These scarcely visible glands were formerly said to be the seeds or germs of the young truffles. The less the inside of the truffle is colored by dark veins, the more tender and delicious is its flesh. The blackish external rind is hard, and very rough, by means of fine fissures, grains, and protuberances; and forms, with its small facets, which are almost hexagonal, an appearance by which it somewhat resembles the fir-apples of the larch.

Whilst the truffle is young, its smell resembles that of putrid plants, or of moist vegetable earth. When it first approaches the point of time at which it has attained its full growth, it diffuses an agreeable smell which is peculiar to it, resembling that of musk, but which lasts only a few days: it then becomes stronger, and the nearer the fungus is to its death and its dissolution, which speedily ensues, so much the more unpleasant and urinous is the smell, till at last it is quite disagreeable and putrid. Whilst young the flesh is watery, and its taste insipid: when fully formed, its firm flesh, which is like the kernel of the almond and the nut, has an extremely aromatic and delicious taste; but as soon as the fungus begins to decay, and worms and putrescence to attack it, its taste is bitter and disagreeable.

Wherever truffles are produced, there they are to be found the whole year through, from the beginning of spring till late in autumn; but in the greatest plenty from towards the end of the month of August to the latter end of October. They thrive extremely, like all fungi, in warm moist autumns, and are then most delicious. After warm continuing showers, they are found nearer the surface of the soil, sometimes so high that they form little hemispherical mounds of earth, in which small clefts are produced by the sun's rays. If the soil is loose, and dry weather succeeds, the earth which was raised up falls down, and the truffle is seen half uncovered. Nevertheless, these truffles are of small value, as they are generally either dead or worm-eaten.

The favorite habitat of truffles is a somewhat moist light wood

soil, which is defended from the immediate effect of the burning rays of the sun by large oak trees, standing at a distance from each other, but is not deprived, by thick bushes, of the free access of currents of air. Where, in woods, there are places bare of timber trees, and with but few bushes, or covered with pollarded wood that does not stand thick, they thrive under an oak, beech, whitethorn, and even under a fruit tree, and sometimes attain the weight of from a pound to a pound and a half: this unusual size, however, is only met with in moist warm grounds. Here they lie nearer the surface of the soil. The drier the soil is, the deeper they are produced in it; but are usually so much the smaller: to this the vicinity of springs is the sole exception.

There are some varieties of truffles which differ in the greater or less degree of roughness of their external rind, in a stronger smell, resembling that of garlic, and in a lighter or darker color. Amongst all truffles, the white variety is of most value, and is preferred to every other. It grows in Upper Italy, chiefly in Piedmont. Its surface is of a yellowish brown, or pale grey-yellow, covered with protuberances resembling warts. The veins in the inside are more delicate than in the black kind, and are of a reddish yellow color. Between the veins, the flesh of truffles that are fully formed, and their sap-vessels and glands, are of a reddish color. The smell and taste of the white truffle are much superior to those of the black, and on that account it is more deserving of cultivation. Only the first plantation requires to be circumstantially attended to, as living pieces can seldom be procured, and to plant dead ones in new plantations is useless. Since this white truffle never degenerates to the black, but constantly produces the same, it appears to be not a variety, but a particular species. It is also found in vineyards, meadows, and even ploughed fields; but the black ones are found only near to forest trees.

2. *Hog-truffle, Swine Truffle, Wild Truffle* (*Túber suìllum.*)—This truffle, which is generally kidney-shaped, usually reaches the size of a bean, and only under very favorable circumstances that of a small hen's egg. It has a thin, leather-like rind, which is covered with many small round warts, without any flat interstices. By means of these, it is distinguished from the true truffle, which sometimes also assumes the kidney shape. The flesh is juicy, and traversed by coarse veins, which are not very crooked. The smell is dis-

agreeably sour, and is like that of swine's dung, on which account it has received its name. Its taste is unpleasant and insipid. On account of its disagreeable taste and smell, it is not used as food; and none but avaricious truffle-hunters mix it amongst the edible truffles, along with which it is often found. There are, nevertheless, districts in which none but swine-truffles are to be met with. Being hardier than the real truffles, they can easily give such properties to the soil of woods, that it produces none but swine-truffles. They are usually found in abundance in such tracts of land as are not mellow, but incline to sourness. Young plantations of truffles may easily be spoilt, and all labor and expense be useless, if, through inattention or want of knowledge, this swine truffle is transferred from its old place of growth into the new. As the real truffle prefers the oak, so the swine truffle seems to prefer the whitethorn, to all other trees. Under its roots they are formed from twenty to thirty together; on the contrary, the edible truffle seldom occurs so many together; it usually lives singly.

3. *Small Truffle* (*Tùber mínimum.*)—This species of truffle lives in much society, and always occurs in great numbers together. It attains only the size of a pea, and is of an irregular form approaching that of a sphere. Formerly it was thought to be the young progeny of the edible truffle.

4. *The Stag-truffle* (*the Stag-rut Fungus, Tùber cervínum.*)—This is the largest kind. It has a globular form and a loose spongy flesh, which, in the midst of its body has so little coherence, that it forms a dusty core or heart. It is not used by man, but red deer scrape it.

All truffles draw nourishment from the earth; not by means of roots, of which no trace is to be found, but by absorbing vessels which cover their whole superficies, in the form, generally, of small warts. For this reason they can thrive in none but moist situations, which offer them, in sufficient quantity, matter dissolved in water. In proportion as the earth about them dries up, the fungi must wither away. They have indeed, in their interior, vessels which contain water, to enable them for a time to do without external moisture; but, if the drought continues, their internal provision is exhausted, the truffle becomes unhealthy, and must at length perish from thirst.

Notwithstanding the want of moisture is thus injurious to the cul-

tivation of truffles, too great a quantity is equally destructive to them. Acids are generated, mould and numerous other parasitic plants get a footing upon the surface of the tubes, and by degrees obstruct the absorbing vessels, and the body of the truffle is consumed or putrefies; the mould also allures many small worms which establish themselves upon the truffle and live upon its flesh.

Upon the first production of the truffle its size is scarcely perceivable; as it proceeds in its growth, the earth that is around it is pressed together and pushed off. On this account the truffle can prosper in none but a loose soil. If the soil is every where equally loose, the truffle assumes a globular form; but this is changed if there is on one side a greater opposition than on the other; as, for instance, by a root or stone. Hence the different forms of the tubers may be explained. Where the soil is most moist, whether above or under the truffle, there it will either rise up or sink deeper. The degree of power of attraction of the moisture in the earth, to that in the truffle, necessitates such a change of place. In moist summers, and in wet winters, we find the truffles near the surface, even projecting above it. In dry summers, upon poor dry places in woods, they have often to be dug from a depth of more than a half a foot. Here is imposed upon them a greater pressure of superincumbent soil. If the earth is not very light, they cannot be fully developed, and therefore remain small. The largest are, consequently, in general, found not deep under the earth, and in shaded light soil that is somewhat moist; they are not, however, so well tasted as those of middling size; they are also usually injured, and therefore of a bitter taste. The access of their enemies, viz. worms, snails, and quadrupeds, is much facilitated when no deep stratum of earth protects them against these attacks.

As truffles were found in such soils only as contained many putrid parts of vegetables, especially roots and leaves, or twigs of trees; it was in old times the opinion, that these fungi were neither plants nor animals, that they did not arise from germs, but that they had been formed by a globular secretion and attraction of matter found in the earth. According to this supposition, they no further differ from minerals than that in them the materials of the earth unite in forming a new substance; but here, in the case of truffles, the new body is formed by parts of plants in solution. Pliny, the Roman naturalist, was of the same opinion, and adduces as a proof, the ex-

perience of a Roman prætor, Lartius Licinius. This person, a few years before, had eaten truffles in Spain, and had met with something hard in one of them. Upon a closer examination he found a small Roman silver coin, a penny (denarius ;) which, therefore, being accidentally present in the mechanical accretion of its component parts, was enclosed along with them Taking the fact for granted, it by no means proves the assumed opinion. If the coin were really found in the body of the truffle, and had not in the cooking accidentally found its way in, it had been pressed in by the quick growth of the fungus. Being a hard body, it did not give way to the truffle equally with the loose moist soil, and was included in the substance of the fungus, as nowadays small foreign bodies, such as stone and metals, are met with in wood, and in the inside of more juicy plants. When such are met with, they are supposed to have been accidently included ; because it is known that a tree or plant continually increases in circumference from its youth to its old age. There is no reason in these instances, from the presence of these foreign bodies in wood, to infer a mechanical accretion of component parts, and there is as little for the inference in the case of the truffle. This, nevertheless, is still believed by individuals, who pretend that all fungi are formed from the putrescence of dead vegetables.

There is, however, some truth in this clumsy representation. As the infusoria are more readily produced, and in greater numbers, in water that contains a solution of organized matter, so fungi are produced where the soil is mixed with such matter as must necessarily be used for their formation. When truffles are to be produced by artificial means, nature must be imitated as closely as possible, and such circumstances introduced as are always met with in the habitats of this fungus.

(To be continued.)

Art. III. — *Premiums of the Massachusetts Horticultural Society.*

The Massachusetts Horticultural Society, established in Boston, offers the following premiums, for Fruits, Vegetables, and Flowers, for 1838.

The augmented and various displays of Flowers, Fruits, and Vegetables, and the zeal manifested by the cultivators thereof, during the past year, have been such as to induce the Massachusetts Horticultural Society, to offer, for the present season, the following premiums, to promote the general interest of Horticulture, and to excite a spirit of emulation among its members for the public good.

FRUITS.

Pears.	For the best Summer Pears, not less than one doz., a premium of	$5 00
	For the best Autumn Pears, not less than one doz., a premium of	5 00
	For the best Winter Pears, not less than one doz., a premium of	5 00
Apples.	For the best Summer Apples, not less than one doz., a premium of	5 00
	For the best Autumn Apples, not less than one doz., a premium of	5 00
	For the best Winter Apples, not less than one doz., a premium of	5 00
Cherries.	For the best Cherries, not less than two quarts, a premium of	5 00
Peaches.	For the best Peaches, open culture, not less than one doz., a premium of	5 00
	For the best peaches, under glass, not less than one doz., a premium of	5 00
Plums.	For the best Plums, not less than one quart, a premium of	5 00
Apricots.	For the best Apricots, not less than one doz., a premium of	4 00
Nectarines.	For the best Nectarines, not less than one doz., a premium of	4 00

Quinces.	For the best Quinces, not less than one doz., a premium of	5 00
Grapes.	For the best Foreign Grapes grown under glass, a premium of	10 00
	For the best Foreign Grapes, out door culture, a premium of	5 00
	For the best Native Grapes, a premium of	5 00
Gooseberries.	For the best Dessert Gooseberries, not less than two quarts, a premium of	5 00
Raspberries.	For the best Raspberries, not less than two quarts, a premium of	5 00
Strawberries.	For the best Strawberries, not less than one quart, a premium of	5 00
Currants.	For the best Currants, not less than one quart, a premium of	2 00

VEGETABLES.

Asparagus.	Earliest and best in open ground,	$4 00
Cucumbers.	Best pair on or before the 1st Saturday in July,	4 00
Cabbages.	Early, the best four heads,	2 00
Carrots.	Twelve roots, the earliest and best,	2 00
Beets.	Twelve roots of the earliest and best, by the 1st Saturday in July,	2 00
Rhubarb.	Six spears of the best,	3 00
Potatoes.	Early, one peck the best, by the 1st Saturday in July,	3 00
Celery.	Two plants, earliest and best,	2 00
Beans.	Large Lima, two quarts shelled,	3 00
"	The earliest and best, dwarf shell, two quarts,	2 00
Lettuce.	Four heads, the finest and heaviest of the season,	2 00
Cauliflowers.	Two heads, the finest and heaviest of the season,	3 00
Broccoli.	Two heads,	3 00
Squashes.	Winter, the largest and best pair,	3 00
Peas.	One peck, the earliest and best, by the first Saturday of June,	4 00
Melons.	Water, the largest and best pair,	3 00
"	The finest greenflesh in the season,	3 00

Indian Corn, for boiling; twelve ears, having regard to the size of the ears, their earliness, and the quality of the corn, 2 00

FLOWERS.

Roses.	For the best display,		$5 00
	" 24 hardy varieties,		3 00
	" 12 " "		2 00
	" 12 China and other tender varieties,		3 00
Hyacinths.	Best display,		5 00
Carnations.	" "		5 00
	" six varieties,		3 00
	" seedling,		3 00
Pinks.	" display,		5 00
	" six varieties,		3 00
	" seedling,		3 00
Tulips.	" 12 varieties,		8 00
Dahlias.	" display,	1st prize,	10 00
	" "	2nd "	6 00
	" 24 varieties,	1st "	8 00
	" "	2nd "	5 00
	" 16 "	1st "	6 00
	" "	2nd "	4 00
	" 8 "	1st "	5 00
	" "	2nd "	2 00
	" seedling,	1st "	3 00
	" "	2nd "	2 00
Violas.	" display,		5 00
	" seedling,		3 00
Geraniums.	" display, six varieties in pots,		5 00
	" seedling,		3 00
Herbaceous Plants.	Best general display during the season,		10 00

A gratuity is also offered for any specimens of new or rare plants, or for any plant, which may be considered by the Committee on Flowers, deserving, for its great beauty or superior culture, such mark of approbation.

It is desirable that the specimens offered for competition should

be as numerous as possible, regard being had that none should be presented but those of a fine quality, and that each kind should be accompanied by its name.

The society may withhold any prize if the specimen exhibited be deemed, by them, unworthy; although a prize may have been announced for the best production in the class to which it respectively belongs. And be it further understood, that all Fruits, Flowers, or Vegetables, brought forward for competition, must be the property of, and raised by the competitor.

The Society meet every Saturday morning at their rooms, 23 Tremont Row, where articles designed for exhibition or competition may be presented. The specimens for premiums should be on the table by ten o'clock, A. M. labelled with the name of the owners. Persons wishing to become members of this Society, will please make application to any of the officers as above.

All premiums not applied for within six months after they are awarded, will be considered as forfeited to, and for the use of the Society.

Committee on Fruits.

W. Kenrick, *Chairman*,
Robert Manning,
Samuel Downer,
Benj. V. French,
Edward M. Richards,
John A. Kenrick,
John M. Ives, Salem,
P. B. Hovey,
L. P. Grosvenor,
William H. Cowen,
J. L. L. F. Warren,
S. Pond.

Committee on Vegetables.

Samuel Pond, *Chairman*,
P. B. Hovey,
S. Walker,
E. M. Richards,
Aaron D. Williams,
Rufus Howe.

Committee on Flowers.

S. Walker, *Chairman*,
C. M. Hovey,
Joseph Breck,
S. Sweetseer,
D. Haggerston,
Samuel R. Johnson,
M. P. Wilder,
William Carter.

E. VOSE, *President.*

R. T. PAINE, *Corresponding Secretary.*

Art. IV. — *The Kitchen Garden.*

General Observations.— The Kitchen Garden may be considered as the most useful department in Horticulture; its adaptation being wholly for the produce of esculent vegetables, and fruits.

The leading features of a Kitchen Garden are, in regard to its selection, that it be so situated as to be inclined to a S. E. direction, and protected on the N. W. with a high boarded fence, or brick wall from 12 to 15 feet high, in order to shelter it from the cold winds, &c. The soil should be of a deep rich, mellow loam, of an even surface. Water will also be a consideration, and should, if possible, be conducted into the Garden, or at least contiguous thereto.

In laying a Kitchen Garden out, it should be done in the most simple manner, both for convenience, and a correspondence of its utility. The most approved method is to have the garden so situated as to be in a square with the four points of the compass, viz: N. S. E. W., surrounded with either a boarded fence or brick wall. The ground will require to be divided into four or six squares, according to its size, if no more than an acre or two, four will be sufficient; if larger, six will be requisite.

The walks will require to be eight or twelve feet wide, according to the extent of the ground, but eight feet at the least, which will be in parallel lines with the four points or quarters. The ground must now again be divided round the outside by making a walk entirely round the ground of the same width and nature as the centre walks, leaving a border twelve feet wide round the whole of the garden. In laying out the garden it will require to be managed with all possible economy; in regard to preparing the different departments for the various vegetables that are intended to be grown. The first object is to stake out the walks, when the earth is to be taken out to some convenient depth from six to twelve inches, which is to be taken on the squares or borders, where it is the most wanted; the walks are then to be filled with gravel and made. In preparing the ground, it should, if convenient, be made of a different component and quality in order to accommodate the different vegetables, at different seasons, namely: the South and East borders should be made of a light rich soil, for early vegetables; the North

and West borders should be of a moist mellow loam, to contain a moist quality for the accommodation of summer vegetables in the hot months. The selection of fruits should be of the best quality, and such as are known to bear well, and give a regular succession. The vegetables should be of the truest varieties of their kinds; and of such varieties as are known to be wanted in every department of the kitchen concerns.

The manner of planting should be of a regular mode, beginning always at the south part of the garden; as the south borders, &c., and the squares and western borders may be next cropped and so on in proportion, till the north situations are brought into cropping, which will be in the hot months if well managed. The fruit departments, such as currants, gooseberries and the like, should occupy a department entirely by themselves. The planting of fruit in the borders of a kitchen garden is always attended with bad consequences. The seed beds as onions, beets, parsnips, carrots, &c. should be planted in a square purposely prepared by working it deep and well manuring, as most spindle shaped plants or roots, require a deep rich soil. Such beds should be so managed as to be cropped *alternately*, the beets should be succeeded by carrots, parsneps by onions, &c. Large perennial plants, as the pie-rhubarb, sea-kale, artichokes, asparagus and the like, will require a separate square. Herbs, as mint, thyme, &c. may be planted on a western border, or at least in a separate department.

A considerable number of forcing frames may also be attached to the kitchen garden, which may be considered of great utility in the first case by forcing vegetables, in the second case by preparing the manure by a process of fermentation, and in the third by all noxious seeds being destroyed by being fermented, hence great expense is saved in weeding. No kitchen garden of any respectability, should not be without a good quantity of forcing frames. The last and great object should be to keep the kitchen garden free and clean from weeds, or any nuisance that may tend to encourage vermine, or that may be offensive to the eyes.

Succession of Vegetables.— In the management of the kitchen garden it will be necessary to point out first, some of the principal requisites, of which, the knowledge of the proper vegetables, must most certainly be the prime consideration, which will be found in the list of esculent vegetables with their time of planting, and proper

season for table. The second essential consideration, is the obtaining a regular succession of such vegetables, as may be required for many months, and others perpetually, as the onion, carrots, &c. To obtain a succession of vegetables the first grand object is to make every preparation in the early part of the season in order to forward vegetables of every description at an early period. This must be done partly by growing the seedling plants, as cabbage, lettuce, &c. in frames in the fall, which will require to be protected through the winter, and partly by well preparing the frames for their reception by pulverizing, manuring, &c. Another object is also to be kept in view, namely, *the most careful and attentive treatment.*

The removal of vegetables from frames or other places where they have been forwarded, to be planted in the open ground, may be considered as a sort of mitigation from an unnatural to a natural soil and situation, consequently great care must be taken that the change is not sudden which will retard instead of forwarding their growth. In the first place great care should be taken in the act of transplanting not to injure the roots, which will be unusually *tender*, by the process that has been taken.

Secondly.— Every attention must be paid in protecting and covering, to keep them secure from the cold external air, frosts, colds, winds, and other causualties, every attention will be required also as regards culture, as working well about the roots of such plants and warming the soil in order to stimulate their growth, in this early season.

The next consideration is early cropping in the natural way to succeed those raised in hot beds and other artificial means; this must be managed by cropping the warm part of the garden, as the south borders and the most highly cultivated parts, with such vegetables as will be required to succeed those already planted. E. S.

(To be continued.)

Art. V.—*Miscellaneous Matters.*

Walker's Tulip Show.—Mr S. Walker of Roxbury has again exhibited his bed of fine Tulips; and we are gratified to learn has received increased patronage. For ten days past his tulip house has been thronged with delighted visitors. Fortytwo new varieties have been added since last year. It is undoubtedly the best collection in the country. The Tulips had a fine healthy appearance, and are evidently superior to what they were at the last exhibition. So rich and gay an assemblage of plants we do not recollect of having ever seen before. The bed contains 700 bulbs in 100 rows, seven in a row, the rows seven inches apart, and seven inches from each other in the row, making the bed about 60 feet by 4. The Tulips are well arranged as to color and height; the tallest being in the centre of the bed and the lowest growing sorts on the outside. We cannot attempt to describe the endless variety and beauty contained in this bed. To have any idea of its splendor it is necessary to be an eye witness; language and even the pencil would fail in the attempt.

The Strawberry.—The season approaches, when the strawberry will be in bloom, and it is vain to expect success in the cultivation of this fruit, without understanding the character of the plant. It belongs to the class of plants that have the male and female organs in the same plant and in the same blossom. Yet in all the kinds I am acquainted with, with two exceptions (the white and the monthly) the male organs are defective in one set of plants, and the female in another, and in some of the largest varieties, it amounts to a complete separation of the sexes. In some of the varieties, a single plant of either may produce a few berries, but they will generally be half formed fruit. Both kinds, are produced from the seed, and after bearing for years, they never change their character. One barren vine, is necessary to every ten or twelve bearing ones. The barren vines require watching for they will form ten new plants, where the bearing form one An experienced eye can tell them apart, at any season. They may be distinguished at the distance of ten feet, when in bloom. The male blossom, is nearly double the size of the female. In the female blossom, the male organ can only be seen on dissecting the blossom, and bringing it near

the eye. In the male, they can be seen with their yellow and their brown heads, at the distance of ten feet, hiding the female organs. The principle holds good, in all the wild strawberries I have met with, in different parts of the Union. On dissecting the blossom, the female organs will be found attached to the stem; the male, to the hull. Examine your beds when they have been in blossom a few days, and you will find the female blossoms have fruit fully formed, the male none, or very scattering. With proper attention more fruit may be raised on one hundred feet square, than by chance culture can be raised on an acre. In setting out a plantation, a person by chance may obtain both male and female plants and have a good crop. But if suffered to run, in three years, the male plants would extirpate the females. Vines must not stand too thick, or the fruit will be smothered, and never come to perfection. —*Cincinnati Express.* N. Longworth.

The Botanic Garden.—A meeting of the subscribers to the Botanic Garden, to be established by consent of the city on the vacant lands west of Charles Street, fronting the common, was held on Saturday afternoon, June third, and the subscription lists bearing a sufficient number of names and amount of money to warrant the immediate commencement of operations, the subscribers adopted a Constitution, and proceeded to the election of Five Trustees to represent them until the first Monday in October next, which was appointed as the day of annual meeting. The following gentlemen were chosen: Horace Gray, Samuel A. Eliot, C. P. Curtis, George Darracott, J. E. Teschemacher.

The amount already subscribed, is nearly $20,000. From the spirit manifested at the meeting, we feel confident that before the close of the season a commencement will have been made, and an exhibition of choice flowers presented to our citizens that shall delight and astonish them. The subscription lists are still open, and the advantage, to the subscriber of $100, to the corporate property, is the free admission of himself and household to the Gardens at any time during the hours that they are open. A barren waste will soon be converted into a delightful promenade—a paradise in miniature.—*Transcript.*

QUINCY MARKET.

[Reported for the Horticultural Register.]

ASPARAGUS,	per bunch,	10
APPLES, Russet,	bushel,	1 25 a 1 50
Baldwins,	none.	
Dried,	pound,	8
BEANS, White, Foreign,	bushel,	1 50 a 1 75
Domestic,	do.	2 25
BEETS,	do.	75
BROCCOLI,	head,	25
CARROTS,	bushel,	75
CAULIFLOWER,	head,	25
CRANBERRIES,	bushel,	3 00
CUCUMBERS,	pair,	50 a 1 00
DANDELIONS,	peck	12
HORSE RADISH,	pound,	8
LEMONS,	box 2 25 a 2 50	dozen 17 a 25
LETTUCE,	head	3
ORANGES,	box 2 25 a 2 50	dozen 17 a 25
ONIONS,	bushel,	2 00
new,	bunch,	6
PARSNIPS,	bushel,	75
PARSLEY,	half peck,	25
POTATOES,	bushel,	50
RADISHES,	bunch,	3
RHUBARB,	pound,	3
RUTA BAGA,	bushel,	75
SPINACH,	peck,	12
SQUASHES,	pound,	3
TURNIPS,	bushel,	75
WALNUTS,	do.	2 00

Apples, with the exception of Russets, are scarce and hardly to be found.—Beets, Carrots, Parsnips, and Onions are mostly out of market, and with the exception of Onions, no new ones have appeared.

We have noticed a few Cauliflowers and Broccoli from the garden of J. L L. F. Warren, of Brighton, the first which have been offered for sale this season. With Radishes, Lettuce, Rhubarb and Greens of various sorts the market appears to be well supplied.

Forced Cucumbers come in in sufficient quantities to supply the demand at prices quoted.

Boston, June 4, 1838.

THE

HORTICULTURAL REGISTER,

AND

GARDENER'S MAGAZINE.

JULY 1, 1838.

ART. I.—*Monography of the Genus Camellia, or An Essay on its Culture, Description and Classification.*

(Continued from page 175.)

CHAPTER THIRD.

METHOD OF CLASSIFICATION.

BEFORE describing the species or varieties, it is proper that an explanation should be given of the method of classification, to which we have alluded.

This method consists of two series of ascending chromatic gamuts, of the tones, and natural shades of the flowers, of the principal varieties of the Camellia, all of which, as we have stated, having been derived from the Camellia Japonica, properly so called.

The first gamut commences with the *Pure White*, which passes to *Rose*, then to *Cherry*, more or less deep, and goes on to *Amaranth*, or *Province Rose*, and ends with *Purple*.

The second gamut commences with *Yellowish Carnation*, (dingy white,) which passes to *Flesh*, then to clear or deep *Orange*, and ends in *Purple*.

The flowers of these two gamuts, are, as we have elsewhere stated, either *unicolored* or *bicolored*. The *unicolored* are those which do not admit of any modification in the unit of their color, like those indicated in the first gamut, of the colored synoptical table.

The bicolors, on the contrary, allow of several modifications, and present five different division.

The first gamut includes three, which are:

1st. Flowers with a *white* ground, striped or spotted with *rose*.

2d. Flowers with a *rose* ground, striped or spotted with *cherry*.

3d. Flowers with a *cherry* ground, striped or spotted with *white*.

The second gamut includes two, which are:

1st. Flowers with a dingy *white* ground, *flesh color*, striped with *white*.

2d. Flowers with an *orange red* ground, more or less deep, striped, or spotted with *white*.

In the first gamut, — and here we borrow the language of the painter, — the *white is not overpowered* by any color.

The *Rose* is either overpowered by the *Clear Rose-Lake* and the *Naples Yellow*, as in No. 1, in the colored table; or by the *Clear Rose-Lake*, *Naples Yellow*, and *Vermilion*, as in Nos. 2, and 3, in the same table; or by the *Deep Rose-Lake*, *Naples Yellow*, and *Vermilion*, as in No. 4 of the same table.

The clear, or deep *Cherry* is overpowered, either by *Carmine-Lake*, which, mixed with more or less *Rose-Lake* and *Vermilion*, produces the *Amaranth* more or less deep, No. 1; or by *Carmine-Lake*, mixed with more or less *Vermilion*, which produces *India Red*, as in No 3.

Or by *Carmine*, mixed with more *Vermillion*, which produces the *Provence Rose*, or *Purple*, as in Nos. 4, 5, 6, and 7.

In the second gamut, the *Dingy White*, or *flesh-colored*, is overpowered by the *Clear Rose-Lake* and *Cinnabar*, as in Nos. 1, 2, and 3. *The Clear Orange Red* of this gamut is overpowered by the *Rose-Lake*, with more *Cinnabar*, as in Nos. 1, 2, 3, and 4. The *Deep Orange-Red* is overpowered by the *Carmine*, mixed with more or less *Cinnabar*, which produces the *Poppy*, Nos. 5, 6, 7, and 8.

To enable amateurs to select Camellias according to their taste, and to base their choice upon more precise notions, we have not only designated by a special epithet, at the end of each descripton,* the appropriate degree of merit due to each plant, but have also

*The designating epithets are in the following gradation. Insignificant, rather insignificant, passable, curious, pretty, very pretty, handsome, very handsome, distinguished, beautiful, very beautiful, charming, superb, magnificent.

given the synonyme, by which it is known in the nurseries, and flower-markets; and lastly, to render the work acceptable to all those to whom we have the honor of being known, whether amateurs, or nursery-men, we have indicated the principal nursery-men, who may be applied to, with confidence, for selections. Knowing very particularly the greater part of those establishments, as well as the intelligence, integrity, and honesty, of those who direct them, we can assure amateurs, by our own experience, that their orders will be faithfully executed.

ADDRESSES OF THE PRINCIPAL NURSERY-MEN IN EUROPE.

IN FRANCE.

M. M. De Soulange Bodin, rue de la Chaussee-d'Antin, No. 44, a Paris;
Noisette, faubourg Saint Jacques, No. 51, a Paris;
Cels freres, choussée du Maine, No. 77, a Paris;
Paillet, rue du Petit-Banquier, No. 5, a Paris.
Mathieu, rue de Buffon, a Paris;
Durand, rue de Buffon, a Paris;
Cisley — Vandael, rue de Vaugirard, a Paris;
Fion, rue des Trois-Couronnes, a Paris;
Daniel Hooibrink, boulevart Mont-Parnasse, No. 37 a Paris;
Baumann freres, a Bolwiller, Haut-Rhin;
Margat père et fils, a Versailles;
Bertin, id.
Lahaye, id.
Dubart, a Montreuil, pres Paris;
Cachet, a Angers;
Leroy, id.
Miellez, a Lille.

IN FOREIGN COUNTRIES.

Knight, London:
Loddiges, do.
Mechelynk, Gand;
Buyckvander Meersch, Gaud;
Verleeuwen, do.
Vangeert, do.

Veschaffelt, Gaud.
Moens, Anvers;
Parmentier, Enghien;
Hilot, Bruxelles;
Oackes, Tourney;
Martin Burdin, Turin, Italy.
Mariani, Milan, do.
Martin Burdin, Milan, do.
Casoretti, do. do.
Tagliabue, do. do.

CHAPTER FOURTH.

DESCRIPTION OF THE SPECIES AND VARIETIES.

FIRST GAMUT.

UNICOLORED CAMELLIAS.

WHITE FLOWERS.

1. Camellia *Alba simplex.* — Shrub vigorous, branches diffuse; leaves two inches four lines* broad, and four inches and three lines long, roundish-oval, a little acute, much veined, and regularly dentated, deep green: appearance of the C. *variegata plena;* buds large, pointed, scales calycinal, and of a pale green; blossoms two and a half inches in diameter, regular, single, pure white; petals broad, in number five or six, white, sometimes spotted with red; stamens closed in a fascile; the pistil surpasses them in length. Produces seed. A pretty variety.

2. C. *Alba plena.* — Leaves two inches and three lines broad, and four long, elongated-oval, acute; revolute at the summit; irregularly dentated, of a dull green, and prominent nerves; petiole short; bud large, oval, with green calycinal scales; flower very large, full, regular, deprived of sexual organs, which are replaced with numerous petals, thick, spiral, imbricated, milk white, forming a very round corolla, four inches in diameter, and of an extremely elegant form.—*Magnificent.*

3. C. *Amabilis.* — Leaves two inches three lines broad, and four long, roundish-oval, acute, a little acuminated, horizontal, nerves conspicuous, regularly dentated, of a dull green; bud elongate,

* The French line is the twelth part of an inch.

scales greenish; flower terminal, large, white, single, eight petals, a few stamens in the centre; it differs very little from the C. *alba simplex.—Beautiful.*

*4. C. *Axillaris.*—Leaves oblong, glabrous, flat, coriaceous, dentated at the summit; the superior almost entire; flower of a yellowish white. This plant appears to us to be rather a Gardenia than Camellia; it requires much heat to grow well.

5. C. *Anemonæflora, Alba plena.* — Leaves medium, of the color and size of those of the C. Pomponia plena. A vigorous shrub; bud very large, depressed at the summit, and almost round; scales green and shining; flower full, very large, four and a half inches in diameter, of a dazzling snow white; exterior petals large, foliaceous revolute, sometimes spotted with red at the claws, and irregularly arranged; those of the interior rows, long, erect, cut in a ligulate manner, united and compressed into a large flattened ball, in the middle of which are confounded a few sterile and almost invisible stamens.—*Superb.*

6. Camellia, *Anemonæflora, Warrata** *carnea.*—Leaves one inch and seven lines broad, and three inches three lines long, elongated-oval, a little acute; form and color of the *Wilbancksiana;* bud small, scales green; flower white, double, small, resembling much the little flower of the *Pomponia,* improperly called carnation, for there is no tint of flesh color in this flower.—*Pretty.*

7. C. *Candidissima.* — Leaves small, one inch and seven lines broad, and three inches two lines long, elliptical, or elongated-oval, acute, horizontal, flat, thick, glossy, very finely dentated, of a pale green, often spotted yellow; a shrub of a pretty appearance, vigorous; bud oval, quite large before bursting into bloom, scales light green; flower very large, four inches or more in diameter, full, of a very pure white, petals regularly imbricated, and resemble, very much, those of the double white Camellia, and are in number from seventy to seventyfive, broad, a little crenated at the summit, and diminish in width in proportion as they approach towards the centre. —*Magnificent.*

8. C. *Compacta.*— Leaves oval, acute, very finely dentated, resembling those of the C. *Pæoniæ flora,* but of a duller green; surface dotted; bud oblong, small, scales green; flower small, fourteen lines in diameter, double, of a very pure white; petals, of the

* This name is often written *Waratah.*

three exterior rows, firm, perfect, well imbricated; those of the centre numerous, small, erect, fasciculate, regular, in the form of a lance head, and intermixed with some fertile stamens.—*Superb.*

9. C. *Curvatheœfolia.* — Leaves like those of tea, three inches long, and two broad, very acute, the summit singularly recurved, in the form of a hook, nerves apparent, not numerous; flower white, regular, very double, three and a half inches in diameter; petals disposed in a regular roseate, of a very pure white: those of the circumference emarginate, slightly sinuous; those of the centre irregular and a little tortuous.—*Superb.*

*10. C. *Euryoides.*—Branches slender; stock pyramidal; leaves small, ovate-lanceolate, concave, dentated pretty deeply; flower small, single, white, a little fragrant.

11. C. *Excelsa.*—Leaves eighteen lines broad and three inches long, oval, acute, form and disposition like those of the C. *Compacta*, and of a deep green; bud of a medium size, scales green; flower white, double, three inches in diameter; exterior petals large, rather numerous, regularly arranged; those of the centre small, cordiform; a few short stamens, with pale, yellow anthers.—*Very beautiful.*

12. C. *Fimbriata.*—The leaves exactly like those of the C. *Alba;* but a less vigorous shrub; bud large, rounded, scales of a dark yellow; flower three and a half inches in diameter, full, depressed; petals gracefully imbricated, dentated, or mucranated at their superior limb.—*Superb.*

13. C. *Gallica alba.*—A very vigorous shrub, the young shoots green; leaves ovate-oblong, finely dentated and considerably acuminated; bud oval, pointed, scales green; flower large, three inches and three lines in diameter, semi-double, of a milk white; the petals of the circumference broad, rounded, and cordiform; those of the middle much smaller, elongate, crenated in the heart, and intermixed with stamens.—*Very beautiful.*

14. C. *Granelli.*—Leaves of a medium size, oval, acute, of a deep green, glossy; bud pointed, scales green; flower irregular, pretty large, three inches in diameter, double white.—*Pretty.*

15. C. *Kissy.*—Leaves lanceolate, not very firm, of a dirty green, and resemble a little those of the C. *Sassanqua simple*, but less, and more acuminated; flower small, white, single, a little fragrant.

16. C. *Lacteola.*—Leaves two inches broad and three long, well

arranged, roundish-oval, a little obtuse, very finely dentated, of an obscure green; a well formed shrub; bud large, oblong, scales yellowish, with a black border; flower large, three inches in diameter, semi-double, of a pure white; exterior petal revolute; those of the centre erect, a little rumpled, and intermixed with sterile stamens. —*Superb.*

17. C. *Nivea.*—Branches short and slim; leaves small, oval, recurved; nerves quite distinct; flower irregular, semi-double, large, white.— *Very beautiful.*

18. C. *Nobilissima.*—Leaves two and a half inches wide and three inches and eight lines long, roundish-oval, a little acute, much dentated, and of a beautiful green, bud oval, obtuse, scales yellowish; flowers large, three inches in diameter, full white; exterior petals large, numerous and recurved; those of the interior smaller, crowded, rumpled; in appearance like the *Pomponia.*—*Superb.*

*19. C. *Oleifera.*—A very tall shrub, pyramidal; leaves ovate-oblong, slightly crenate, flat; flowers *biternate*, white, single, rather large. From the fruit of this shrub, the Chinese extract an oil of a sweet odor, with which they perfume their apartments.

*20. C. *Oleæfolia latifolia* —Leaves oblong almost sessile, a little inflexed, unequally dentated; bud small, oval, a little downy, scales yellowish; flower single, white, of a medium size; the centre is a little yellow and open.

21. C. *Palmerii alba*, or C. *Pomponia semi-plena.*—A very vigorous shrub; grows to the height of from fifteen to twenty feet, and of a very elegant appearance; leaves ovate-lanceolate, a little acuminated, often recurved at both extremities; nerves a little salient, smooth, finely dentated, form, color, and size of those of *Pomponia plena;* buds large, rounded, scales of a light green; flower very large, very nearly four inches in diameter, semi-double, regular, of a brilliant white, often having a portion of its petals considerably striped with rose, beginning at the claw, and expanding and becoming more faint towards the summit; stamens numerous, disposed in a fascicle, at the centre of the flower.—*Magnificent.*

22. *Pomponia plena.*—Leaves oval, elongate, very acute, smooth near extremities, recurved downwards, finely dentated, of a dull green, two inches broad and three long; some of them of larger size; a vigorous shrub, branches diffuse, and disposed to shoot out in all directions, without order, if they are not regulated by prun-

ing; buds large, rounded, scales green; flower very large, four and a half inches in diameter, full and of a pure white. The petals of the circumference are flat or undulating, those of the centre are concave, white, at the claw red, with sometimes shades of light yellow. This beautiful variety, is not uniform in the color of its flowers, for often there are seen on the same plant, red, rose, and white.—*Magnificent.*

23. C. *Rolissoni.*—Leaves an inch and a half wide, and two and a half long, roundish oval, a little pointed, horizontal, nerves conspicuous, finely dentated, of an obscure green; bud obtuse, scales whitish; flower of a medium size, double, of a milk white, and handsome form; exterior petals disposed in several rows, crenated at the summit; those of the circumference are fringed, all are imbricate, and turned back regularly upon the calyx, as in the C. *Excelsa.* The centre is composed of stamens which are nearly all petaloid, with a yellowish heart.

*24. C. *Sassanqua.*—A shrub with open branches, which are reddish and villous when young; leaves one inch broad and three long, alternate, oval, obtusely dentated, emarginate, thick, and of a dull green; flower small, single, composed of five petals, of a beautiful white, sessile, terminal.

25. C. *Splendidissima Berl.*—A shrub about three feet high, vigorous, pyramidal; leaves three and a half inches broad, and four and a half long, oval, rounded, almost cordiform; nerves numerous and apparent, slightly dentated, glossy and of a deep green; buds large, oval, obtuse, of the form of the old double white camellia, scales greenish; flower four inches in diameter, full, white; corolla very near the form of C. Colvilii; petals of the periphery, broad, numerous, reflexed, undulate, irregular, a little lacinnated on the border, and of a pure white; those of the interior are more erect, elongate, numerous, very compact, curled, as well as those of the circumference, and of a less brilliant white. No apparent sexual organs. This beautiful variety, was obtained by us from the seed. Four journals, the *Constitution*, the *Times*, the *Debates*, and the *Journal of Paris*, alluded, in March 1835, to the beauty of its flowers. See the description which has been given of it, in the Annals of the Horticultural Society of Paris. C. *Spoffortiana.* See the first gamut, striped bicolors, first division.

26. *Veymaria.*—Leaves small, like those of Pomponia plena; bud

rather large, scales green; flower three and a half inches in diameter, white semi-double, form, that of the *Pomponia semi-plena*; there is a little of a rose tint in the ground color.

27. C. *Wilbanksiana*, or *heptangularis*. — Leaves one inch and eight lines broad, and three long, oval, lanceolate, a little acuminated, reflexed, slightly dentated, some of them elliptical, smooth, of a yellowish green, glossy; bud spherical, scales blackish; flower white, double, four inches in diameter, irregular, petals of the first row, broad, crenated at the summit, grouped in the centre, in a manner to imitate the union of several flowers, which are contained in a common calyx; those of the interior, are smaller, erect, rumpled, reflexed, intermingled with stamens.—*Superb.*

FIRST GAMUT.

UNICOLORS.

FLOWERS, CLEAR ROSE:

Dominant color.—*Lake* mixed with more or less vermilion and Naples yellow, as in Nos. 2, 3, and 4 of the colored table.

28. C. *Aitonia*.—Leaves two and a half inches broad, and three and a half long, often larger, ovate, oblong, rather near, regularly dentated, thick, nerved, glossy, reflex, of a deep green, bud very large, acute oval, scales green; flower very large, four and a half inches in diameter, and often bigger, single, rose, No. 3, in winter, and cherry-red No. 1. in the spring. This Camellia, where it is a little vigorous, fructifies abundantly every year; its fruit resembles almost exactly, the reinette apple.—*Superb.*

29. C. *Amplissima*.—We are assured it is the same as the Aitonia.

30. C. *Apollina* —A vigorous shrub, filled with numerous spreading branches; leaves two and a half inches broad, and three and a half long, roundish oval, subcordiform, of a green, almost black, nerves numerous and apparent; flower large, three inches in diameter, full, of a delicate rose, No. 2; petals of the circumference rounded and entire, those of the centre, distorted, crenate, and depressed. —*Superb.*

31. C. *Colored*.—Leaves medium, roundish oval, a little acuminated, and slightly dentated; flower very large, single, regular,

rose, No. 4; petals rather broad, considerably elongated, erect, much crenated at the summit.— *Pretty.*

32. C. *Crouyoud* (*Lord.*)—Leaves about two and a half inches broad, and four long, much dentated, reflex, spotted with yellow; flower about five inches in diameter, semi-double, delicate rose, No. 4; petals of the circumference two inches broad, rounded and crenate at the summit, shades of rose and cherry red; those of the centre small, crowned, reflex, and striped with red.— *Very beautiful.*

33. C. *Dahliæflora.*—Leaves deformed, some of them elliptical, a little obtuse, others lanceolate, acute; narrow, undulated, wrinkled, and irregular, sabre or scythe form, of a greyish green; bud pointed, scales green; flower semi-double, depressed, two and a half inches in diameter, rose, No. 3; form of that of C. Spectabilis.— *Very pretty.*

34. C. *Expansa.*—Leaves very like those of C. Pinck, obtuse-oval, much nerved, irregularly dentated; bud of a medium size, scales blackish; flower medium, irregular, semi-double, rose, No. 3; petals of the circumference broad and cyothiform, those of the centre narrow, in two rows, and crenate at the summit; some of the stamens in part transformed into irregular petals, red, and striped with white.—*Produces seed freely.*

35. C. *Fasciculata.*—A vigorous shrub, and pleasing form; leaves one inch and eight lines broad, and three and a half long, elongate-oval, close, much acuminated, slightly dentated, of a glossy green; bud oblong, large, scales greenish, often bordered with black; flower from two and a half to three inches in diameter, color rose, No. 3; petals broad, handsomely arranged, sometimes striped with white; some stamens in the centre.— *Very handsome.*

36. C. *Gussonia.*—Leaves two inches and three lines broad, and three inches five lines long, roundish oval, a little acuminated, erect, with nerves slightly expressed, of adull green; bud rather large, a little pointed, scales green at the summit; flower four and a half inches in diameter, semi-double, rose, No. 3; exterior petals very broad, reflex, displayed regularly, interior smaller, erect, arranged in a rose form. —*Superb.*

37. C. *Heterophylla vera.*—Foliage like that of C. Pæoniæflora; flower medium, regular, flat, double, rose, No. 4; elevated in the centre; petals of the circumference in two rows, broad, imbricate, elongate-oval, a little crenated, expanded, those of the inte-

rior narrow, short, not numerous, whitish, showing indications of stamens.—*Passable.*

38. C. *Leindlega.*—Leaves of a medium size, roundish-oval, horizontal, of a pale green; bud large, depressed at the summit, scales green; flower large, four inches in diameter, semi-double, of a clear rose, No 2; petals broad, not numerous, crenated much at the summit, rounded and reflex, those of the centre, small, rumpled.—*Superb.*

39. C. *Pæoniæflora rosea*, or *rubra.*—Leaves two inches broad, and two inches eleven lines long, and often of larger dimensions, elongate-oval, acuminate, glossy, a little dentated, of a delicate green; a vigorous shrub, has a tendency to extend its branches and requires to be pruned every three or four years, to give it a graceful form; bud large, rounded, scales green; flower full, four inches in diameter, and sometimes larger, of a lively rose, No. 4, often of a cherry red, No. 2; petals of the circumference rounded, broad; those of the centre rolled in the form of a cornet, numerous, narrow, close, erect, rather long, and form a sphere, a little depressed.—*Superb.*

40. C. *Pinck.*—Leaves two inches broad, and two and a half long, roundish-oval, some of them elongate, a little dentated, and very like those of the C. Pæoniæflora; bud small, scales blackish; flower regular, of a medium size, semi-double, of a clear rose, No. 4; petals thick, considerably imbricated. This Camellia is often used as a stock, for grafting other varieties upon.

41. C. *Perle des Camellia.*—Leaves two inches broad, and three long, ovate-lanceolate, of a pale green; flower of a medium size, double, of a pretty rose, No. 4; form, color and disposition of the petals like those of the Camellia Pæoniæflora rosea.—*Handsome.*

42. C. *Pulcherrima*, or *Rolleni.*—A vigorous shrub; leaves two and a half inches broad, and four long, ovate-lanceolate, much acuminated and veined, finely dentated; bud oval, oblong, scales calycinal, pale green; flower five inches in diameter, double, clear rose, No 4: petals of the circumference, in four rows, not very numerous, but regularly imbricated, broad, round, deeply crenate at the summit, clear rose, shaded with carmine from the claw to the limb; those of the middle in five or six rows, of from eight to ten lines long, and four or five broad, some only rose, others striped or spotted with white, always intermingled with stamens, which are generally sterile; borders a little distorted.—*Magnificent.*

43. C. *Rosea plena.* — Leaves elongate, flat, recurved, nerves conspicuous, and much dentated; bud obtuse, rather large, scales greenish; flowers three inches in diameter, double, rose, No. 3; arranged, from two to three at the extremities of the branches.—*Very handsome.*

44. C. *Roseana.*—Leaves one inch and a half broad, and two and a half long, horizontal, roundish oval, a little acute, very finely dentated; form, color, and dimensions of the C. *Speciosa zera*; flower large, full, irregular, of the pale red, inclining to rose, No. 4; petals of the circumference ample, reflex, and slightly crenated; those of the centre small, erect, border reflex, some longer, rumpled, and produce a beautiful effect.—*Superb.*

45. C. *Resplendens.*—A shrub of a vigorous vegetation; leaves enlarged at their base, abruptly recurved at their summit, two and a half inches broad, and three long, glossy, nerved; flower of a brilliant rose, No. 4; three and a half inches in diameter, double; the exterior petals have their edges free, entire, emarginate in the middle, sixteen lines broad; within the third row, the edges of the petals become irregularly sinuous, festooned; they are regularly arranged; the interior forms a kind of cup.—*Charming.*

46. C. *Sinensis rosea.*—Leaves smaller than those of C. *Rosa sinensis*, but alike in form, color and nerves; bud elongated and pointed; flower two and a half inches in diameter, often more, double, rose, No. 3; petals of the circumference bent down, broad, a little reflex externally, and notched at the summit; the others smaller, rumpled, forming an irregular centre.—*Handsome.*

47. C. *Spectabilis.*—Leaves large, often of the color and form of those of the single red Camellia, or those of *Variegata plena;* buds with greenish scales; flower three inches in diameter, double, rose color, No. 4; exterior petals regularly arranged in three rows, broad, sometimes spotted with white; those of the centre swollen, folded upon the ovary, twisted, mixed with some stamens and often striped with white.—*Very handsome.*

This Camellia, which was obtained from the seed in Paris, has long been called C. *Celsiana.* The English have sent it to us under the name of C. *Spectabilis.* In Paris it is also known under the name of C. *Lutetiana.*

*48. C. *Sassanqua rosea plena*, or *multiflora.*—We regard this Camellia as a distinct species. Its leaves are small, oval, acuminate, and of a brownish green, resembling much the color of green

tea; bud oval, obtuse, scales green; flower small, full, petals curled, or twisted, of a clear or deep rose, according to the season of its florescence. This flower much resembles a little pompon rose; sometimes the centre is white, and the circumference of a pale rose. To make this Camellia bloom abundantly it must be pruned very short, once in two years.—*Charming.*

49. C. *Theresiana.*—Leaves elongated; form, color, and size of those of C. *Pomponia plena*: flower large, double, irregular, and of rose color, No. 3, like that of C. *Pomponia plena*, when this passes to pale rose.—*Superb.*

50. C. *Venosa.*—Leaves very much resembling those of the preceding; flower from two and a half to three inches in diameter, double, rose color, No. 3; petals broad, slightly veined, with a pale rose, like those of *Pomponia rosea*, or of C. Theresiana, from which C. Venosa differs very little.—*Very pretty.*

51. C. *Wilbrohamia.*—Leaves two inches broad, and three long, oval, elongate, almost flat, much dentated, of a deep green; bud oblong, scales green; flower three inches in diameter, double, delicate rose, No. 2; exterior petals not very numerous, but well arranged, some of them spotted; those of the centre smaller, intermingled with abortive stamens; the form like that of C. Fasciculata nova.—*Charming.*

52. *Virginica.*—Leaves small, oblong, lanceolate, one inch and two lines broad, and two inches three lines long, much veined; nerves prominent, of a brownish and glossy green; bud oblong, scales green; flower three inches in diameter, full, of a delicate rose, scarcely deeper than in the flower of C. *Wilbrohamia* and like that of the *Pæniæflora;* having two rows of rather large petals in the circumference; those of the middle small, short, twisted, tufted. —*Very beautiful.*

53. C. *Wiltonia.*—Leaves of a medium size, a little elongated; bud small, pointed; flower rather small, double, of a rose color, No. 4; sometimes passing to cherry-red, No. 1; and often striped with white; petals in two rows, imbricate, bent down, those of the centre small, twisted, erect, often intermixed with stamens, or presenting in the middle the pistils alone, being deficient of all the male organs.—*Passable.*

FIRST GAMUT.

UNICOLORS.

CLEAR CHERRY-RED.

Dominant color. *Carmine-Lake*, mixed with rose lake and vermilion, as in Nos. 1, 2 and 3 of the colored table.

54. Camellia *Aucubæfolia.*— Leaves two and one half inches broad and four and one half long, ovate, oblong, very acuminate, and very conspicuous nerves, of a deep green and striped, or spotted with yellow, like the *Aucuba Japonica;* bud oblong, scales calycinal, greenish; flower three inches in diameter, double, well displayed, color cherry-red, No. 1; and very near the form of that of C. *Coccinea.*— *Very beautiful.*

55. C. *Amerstia.*—Leaves one inch and ten lines broad and three inches long, elongated, oval, acuminate, finely dentated; bud of medium size, scales yellowish, flower of medium size, double, of a carmine rose, or cherry-red, No 1.—*Pretty.*

56. C. *Amaena.*—Stock erect, branches straight, leaves ovate, oblong, slightly dentated; flower a little double, color, cherry-red, No. 2; petals of the circumference regularly arranged, those of the centre irregular and shorter. The flowers assume very much the form of a shuttle-cock.—*Handsome.*

57. C. *Augusta.*—Leaves rather large, a little curled, finely dentated, multi-nerved, of an obscure green; bud oblong, acute, scales calycinal and green; flower of a medium size, irregular, double, of a beautiful cherry red, No. 3; petals elongate, erect, and slightly crenate at the summit; those of the centre entire, acuminate and irregularly disposed.—*Pretty.*

58. C. *Aluntii superba*, or *Almets superba*—A shrub of an agreeable port; leaves two and a half inches wide and three and a half long, roundish, oval, reclined and rolled downwards, nerves strongly marked; but quite plump, oblong, scales yellowish, flower about three inches in diameter, double, of a cherry-red, No. 2; petals quite regular, not numerous, and much imbricated, forming a pretty rosette.— *Very handsome.*

59. C. *Buckliana.*—Leaves two and a half inches wide and three inches two lines long, roundish, oval, a little acuminate, the borders rather deeply dentated, and of a deep green; flower full, two and a half inches in diameter; petals of the circumference in three rows, broad, of a cherry-red, No. 1; those of the centre, numerous, smal-

ler, unequal compact, well arranged, of a delicate rose, sometimes striped with white, and occasionally pure rose.—*Very beautiful.*

60. C. *Belle Rosalie.*—Leaves curled, slightly acuminate, nerves very opponent; bud large, oval, scales yellowish; flower large, three and a half inches in diameter, semi-double, of a carmine red, No. 2; petals broad, in number 25 to 30, mixed with many stamens, petals sometimes appear in the middle, rolled spirally in the form of a helix.—*Passable.*

61. C. *Brooksiana.*—Leaves two and a half inches wide and two inches and two lines long, roundish, oval, almost cordiform, horizontal, sometimes spotted with yellow, nerves conspicuous and of an obscure green; bud large, oblong, scales green at the base of the calyx and whitish at the summit; flower of a medium size, two and a half inches in diameter, semi-double, at first rose, and passing immediately to cherry-red, No. 2; petals broad, not numerous, displayed gracefully; flower of the form of that of C. *roides Pays-Bas*; a few stamens in the centre.—*Handsome.*

62. C. *Belle Henriette.*—Leaves of a medium size, ovate, lanceolate, a little spotted on the superior surface, of a deep green; bud with yellowish scales; flower double, two and a half inches in diameter, often larger, cherry-red, No. 3; petals well arranged, imbricated and rather numerous.—*Handsome.*

63. C. *Berlesiana rubra.*—Leaves of a medium size, like those of C. *Rubra simplex*, but of a deeper green; bud oval, acute, quite plump, scales brown; flower of medium size, double, of a beautiful cherry-red, No. 4; form regular, and a little arched or dome form; petals roundish and slightly rumpled.

The Horticultural Society, of Paris, has dedicated this pretty variety to the author who obtained it from the seed, in 1831.

64. C. *Blanda.*—Leaves sixteen lines wide and three inches long, roundish, oval, more narrow at the summit, flat, very finely dentated, rather thick, of a dirty green; flower tolerably large, full, of a cherry-red, No. 3; petals of the circumference broad, expanded, crenated at the summit, sometimes striped with white; those of the centre small and united in a fascicle.—*Very beautiful.*

65. *Boumanni.*—Leaves roundish, oval, like those of C. *Pinck*, but almost flat, and of a greyish green; bud with blackish scales; flower large, double, of a cherry-red, No. 3; which becomes deeper, as it expands; exterior petals arranged in several rows, imbri-

cated ; those of the centre small and a little twisted.—*Very beautiful.*

66. C. *Crassinervia.*— Leaves large, ovate-lanceolate, strongly nerved, of an obscure green ; wood vigorous ; bud large, scales yellowish ; flower of a medium size, very double, irregular, cherry-red, No. 3, sometimes of a clear red, slightly marked with white ; petals generally roundish, and crenated at the summit ; those of the centre rumpled, and deformed ; stamens sometimes apparent, and at others demi-transformed.— *Beautiful.*

67. C. *Cliviana.*—Leaves two inches two lines wide and three and a half long, ovate-oblong, acuminate, near, numerous, much dentated, erect and of a muddy green ; bud very large, oval, obtuse, scales green ; sepals brown at the base and yellowish at the summit ; flower very large, four and a half inches in diameter, double, cup-form, sometimes rose, No. 4, and often of a cherry-red, No 2, more or less brilliant, according to the season. The petals of the first row, are six in number, eighteen lines broad and twenty four long, concave or channelled, forming a star and crenated at the summit ; those of the next rows, long, oval, acute, and affecting the same disposition ; those of the centre, swollen and tufted as in the Anemonæflora, and forming an elevated and irregular heart, about one inch and a half in diameter ; some of these last are striped with white.—*Magnificent.*

68. C. *Chamlcvii.*— Leaves two and a half inches wide and three and a half long, oval, a little acute, oblong, acuminate, finely dentate ; bud roundish — oval, scales green ; flower large, double, regular, of a cherry-red, No. 3 ; petals imbricated and rounded at the summit ; stamens in part demi-transformed.— *Very handsome.*

69. C. *Conchiflora.*— Leaves two inches wide and three and a half long, oval, and little acute, reclined, numerous, of a pale green ; bud small, scales green ; flower two and a half inches in diameter, of a cherry red, No. 3, regular ; petals sometimes marked with white, like those of C. Coccinea, and spirally arranged.— *Beautiful.*

70. C. *Conchiflora nova.*— Leaves roundish — oval, of a medium size and pale green ; nerves stout and prominent ; flower of a medium size, semi-double ; fifteen to twenty petals of a cherry red, No. 4 ; petals almost entire, unequal, irregular and elongate.— *Pretty.*

71. C. *Cramoisina Pamentieri.* — Leaves two and a half inches

wide and about four long, a little acuminated, inclined towards the stock, reflex very like those of the C. *Altheæ flora*, finely dentated, almost flat: bud of medium size, oblong, scales green; flower large, double, cherry-red, No. 2; exterior petals six, broad, crenate at the summit; the others tufted, numerous, arranged in fascicles, leaning upon each other, striped with white at their summit and form a regular ball; corolla very near the form and size of the *Anemonæ flora*. — *Very beautiful.*

72. C. *Celsisana.* Leaves large, lanceolate; dispersed, curled inward; bud large, oblong, acute; flower single, red, large. There is in Paris, under this name, another *Camellia*, which is double, of a rose color, and very beautiful. The English have sent it to us under the name of *spectabilis*.— See this name.

73. C. *Charles Auguste.*— Leaves two inches wide and three long, roundish oval, nerves very apparent, of a muddy green; bud elongated, scales green; flower three inches in diameter, semi-double, of a beautiful cherry-red, No. 3, well formed; petals broad, rounded, warbled or rather spotted with white; those of the first row of the circumference, are reflexed upon the calyx with regularity; the others elevated and curled; a few stamens in the centre.— *Superb.*

74. C. *Conchata.*— Leaves two inches wide and three and a half long, reflected at the summit, strongly nerved, of a deep green; bud elongate; flower rather large, double, of a delicate rose, sometimes of a vivid red.— *Passable.*

75. C. *Carolus.*— Leaves two inches and three lines wide and three inches long, roundish-oval, much veined, nerves conspicuous; bud oval, depressed at the summit, scales green; flower small, almost double, of a cherry-red, No. 1, of a pretty form.— *Distinguished.*

76. C. *Camptoniana.*— Leaves small, one inch and a half wide and two inches seven lines long, roundish-oval, a little acute, numerous, near, elevated, of an obscure green, bud oval, scales yellowish; flower medium, semi-double, regular, at first rose, No. 4, and then clear cherry-red; corolla well formed; some stamens in the centre.— *Very Pretty.*

(To be continued.)

Art. II. — *Horticultural Writings.* By Edward Sayers.

I was ever of an opinion that horticultural writings, when drawn from practical observation, and lucidly dictated, combine much to improve our moral understanding and domestic welfare. It is a species of writing that is gleaned from the very best source of *human* happiness, and the subjects are such, that it is impossible to convert them into any thing that is disagreeable to the reader, or imbue his mind with any false representation. For whether we turn our attention to the flower garden or orchard the subjects to be delineated are natural, and consequently we have nothing to dwell on but the different phenomena that present themselves in the vegetable kingdom, which leaves no room for delusive suggestion to bewilder the reader. The subject is reality, and nothing superficial can be said to be strictly connected with horticultural writings.

There is also much pleasure derived from such compilations; for it is almost impossible to pen one single article, without having in view, the many variations that nature has so agreeably diversified the vegetable kingdom with: — her many tinted flowers — the circulation of sap — unfolding of leaves and flowers — maturity and usefulness of every thing we have to dwell upon — renders the subject not only beautiful but sublime in the highest degree. For one I can truly say that, what little I have read and written on horticulture, has been a source of more comfort to me than all the splendor I have seen of the palace or gaieties of what is called "worldly pleasure." Indeed, in many instances when the little perplexities with which this world is checkered, have in a measure encroached on that fortitude that every person should be possessed of, I have found the writing on a subject so interesting has always not only served to solace the little difficulty of the mind, but reclaimed it into its pristine nature, and in many cases converted evil into the very best of thoughts. In fact my juvenile days have been spent in the study of a subject that at this time, the meridian of life, can only now be realized. For certain it is that granting all the beauties of the vegetable kingdom to be strictly noticed in early life, it is only at the time of our more ripened understanding of advanced age that its real beauty and value can be seen in all its bearings; and it is then when every faculty is awakened to the usefulness of horticulture.

In tracing the writings of former and modern horticulturists, we in many cases find them to flow from a desire to *improve* and inform others more than any *pecuniary* benefit to the authors; indeed generally such communications are not only given gratuitously, but with a view to inform others of some practical improvement which has perhaps taken years of research of the author to obtain, and, in many cases, a great expenditure as a trial of experiment

As a proof of the desire to improve by horticultural writings, we have instances of some of the very best communications being penned and published to the world by those who have no pretensions to any literary attainments or classical education; but have been penned and published to the world in a plain and simple manner, as the practice and theory has been obtained; and on the contrary, we find communications of the most scientific nature in horticulture, have been communicated to the world by the most able statesmen and learned philosophers of the age. The result of each class has been equally beneficial to the community at large, for, while the one has pointed out practical hints of a very useful nature, the other has been the means of simplifying and bringing into use many philosophical and chemical experiments that could not have been communicated so widely in any other way, in so imperishable a form, as through the medium of the press.

ART. III. — *Flowers, Fruits, and Trees.* By H. A. S. DEARBORN.

MR BRECK — The season having been unusually favorable for vegetation, and especially since the 15th of May, the consequent verdant and magnificent appearance of the country, with the blandness and congeniality of the weather, have induced vast numbers of persons, to visit the many highly cultivated gardens in the environs of Boston, several of which have attracted universal attention, either from the great variety of ornamental plants they contain, or the beauty of some favorite kinds, that have been managed in the most skilful manner.

Mr Walker's exhibition of Tulips became the first chief point of

attraction for nearly two weeks, and thousands were delighted, with the superb display, of that infinitely various and gorgeous family of flowers.

Other towns, it appears, have also enjoyed a like interesting spectacle; but a discrimination must be made between the merit due for quantity, and that resulting from the excellence of the varieties, and the perfection of their development. The enterprising gentlemen of Newburyport and Salem, are entitled to great credit, for the taste they have evinced, in the culture of elegant plants; but it is presumed they do not claim precedence, unless they had also as many kinds, which were as rare and perfect in florescence, as those which Mr Walker presented; for the mere superiority in number, cannot be considered as giving pre-eminence, in any vegetable production, unless it is of some very peculiar or notoriously useful species.

To obtain bulbs of the best kinds of Tulips from Holland, Belgium, France, and England, is very difficult and expensive, as every person has experienced, who has undertaken to introduce any particular plant from foreign countries. The bulbs, generally sent to this country for sale, are the rejected of the large nurseries, as all the most choice and valuable kinds are carefully reserved for the European markets, where the amateur purchasers are numerous, and willing and able to pay the highest price, for the remarkable varieties. Even in our day the extravagant passion for Tulips has not entirely subsided, and from 500 to 1500 dollars have been given, within a few years, for a single bulb, while those disposed of, at our auction sales, do not average more than from five to fifteen cents, and often not so much. Some of Mr Walker's cost in London fifty dollars each, and many of them from ten to twenty.

I have cultivated the tulip during a number of years, and had five thousand in bloom at one time, three thousand of which were in a bed, and the remainder scattered in the borders of the avenues and garden walks; but as a show of flowers, it was, in all respects, inferior to that of Mr Walker's bed of only eight hundred, from the inferiority of the kinds, small number of distinguished varieties, negligent mode of cultivation, and imperfect florescence.

To give this superb flower an opportunity of displaying all its charming attributes, the soil must be deeply trenched, and enriched by a peculiar compost of thoroughly decomposed barn-yard manure,

river sand, and decayed leaves or other vegetable matter, while a screen is indispensable to protect the plants, from the cold, night air, the direct rays of the sun, and violent winds, when bursting into flower and during the period of their bloom. This Mr Walker provided, at an expense of several hundred dollars, in a neat and complete manner, in the form of a beautiful pavilion, which was covered with stout white cotton cloth, so arranged, as to be easily rolled up, and let down, by means of pullies.

Tulips have been a favorite florist's flower for centuries, not only in Holland, but in England and other European nations; and as early as 1630, Parkinson, after enumerating one hundred and forty sorts, observes in his quaint manner, that "to tell of all the kinds which are the pride of delight, they are so many, as to pass my ability, and, as I believe, the skill of any other." He was a celebrated herbist and botanist, and acted in that capacity to James I, and Charles I. His book on gardening is the first which was published in Great Britain, worthy of consideration. It is entitled "Paradisi Insole Paradisus Terrestres; or a garden of all sorts of pleasant flowers, which our English ayre will admit to be nursed up; with a kitchen garden of all manner of herbes, roots and fruits for meate, and sause used with us; and an orchard of all sorts of fruit bearing trees and shrubbes, fit for our land, together with the right ordering, planting and preparing of them, and their use and virtues."

In Parkinson's time tulips were divided into *præcoces*, or early blowers, and *scrotinæ* or late blowers, with an intermediate class of *dubiæ mediæ*, doubtful or middle blowers, as they flowered between the two others. The early blowers, have short stems and the Duc Van Throll is almost the only variety in repute, among modern florists. The great number of distinguished and admired varieties are all produced from the late blowers, which having tall stems and much finer colors, engross nearly the whole attention of the cultivators of tulips. The modern mode of classing the late blowers by the Dutch florists is as follows.

Prime Baguets, from the French word baguette, a rod, or wand; they are very tall, with handsome cups and white bottoms, well broken with fine brown, and all from the same breeder.

Rigaut's Baguets.—This variety is supposed to have received their distinctive appellation from some individual by the name of

Rigaut, who was eminent in this branch of floriculture. They are not quite so tall as the former, but have strong stems, and very large well formed cups, with white bottoms, handsomely broken with rich brown color, and all from the same breeder.

Incomparable Verports.—A particular kind of Bybloemens. Cups very perfect, cherry-red and rose color and white bottoms, well broken with shining brown. Some of these are from ten to twenty-five dollars a root.

Bybloemens, or next flowers, called by the French *Flamands*. They have white ground, or nearly so, and are beautifully broken, with shades of purple and a variety of colors. They are from different breeders.

Bizarres, from the French odd, or irregular. Ground yellow, from different breeders, and broken with a variety of colors.

Paroquets, or Parrot Tulips.—The edges of the petals are fringed, colors brilliant crimson and yellow, with shades of bright green; but still they are held in no sort of esteem among florists.

Double.—These are of various, brilliant red, yellow and mixed colors; but, like many other double flowers, are deemed monsters, and not appreciated by flower fanciers, although they have an elegant appearance, from their upright, tall, and firm stems, and crowns of large pæony shaped flowers, and when scattered, with the Parrot, among the small shrubs and other plants in the borders of avenues and walks, or planted out in separate beds, they have a pleasing effect.

In the catalogue of Mosan for 1829, there are six sorts of early tulips, four of Paroquets, twentytwo double, and upward of six hundred late kinds.

Breeders are such as have been procured from the seed, and consist of one color, which is red, purple, violet, gray, brown, black, yellow, or some other individual color, without any sort of variation. These are cultivated in a rather poor and dry soil, and become broken, or variegated, in from one to twenty years, and produce new varieties; but so uncertain is the prospect of a favorable result, that but few persons have been willing to make experiments, for after many years of patient and unremitted attention, there may not be one remarkable and choice variety, out of a thousand seedling bulbs. It is from this circumstance, that a new and superb tulip commands the high prices in Europe which have been named, and actually paid, within a few years.

When the Tulip has broken, the colors are unchangeable, and are perpetuated by offsets from the parent bulb.

The tulips which are deemed worthy of special attention, by amateurs, belong chiefly to the classes of Bizarres and Bybloemens; and the properties of a fine variegated late variety, according to the best modern florists, are as follows.

Petals of a graceful form, the three exterior ones larger at the base than those of the interior; colors delicate, yet conspicuous, from the manner in which the tints are displayed, whether spotted, striped, feathered, blotched, splashed, pencilled, mottled, flaked, or as the French more significantly term the breakings of this flower *panachè;* edges entire and rounded, or but slightly crenated, at the summit, and so symmetrically arranged, as to form a perfect cup-shaped corolla, with a round bottom,—except in some anomalous and remarkable kinds, like that called the Mountain of Snow, whose petals are slightly acuminated, recurved, a little undulate, and the flower leaning to one side. Stem strong, upright, and nearly thirty inches high; radical foliage, long, broad, undulating, and of deep rich green. The ground color of the bottoms of the cups should be clear white, or yellow; the centre of each petal should contain one or more bold blotches or stripes, intermixed with small portions of the original color, abruptly broken into many irregular obtuse points. The colors which are generally held in greatest estimation, in variegated striped sorts, are black, golden yellow, purple, violet, rose, and vermilion, each of which being varied in different ways; but such as are striped with three different colors, in a distinct and unmixed manner, with strong regular streaks, and but little or no tinge of the breeder, are considered the most perfect.

An uncle of Mr Walker, who resides near Windsor Castle, is celebrated for his tulips and ranunculuses, having produced several magnificent varieties of the former and many of the latter from the seed. His exhibitions of those universally admired flowers have been so superb, that his garden has been annually visited by the sovereigns, nobility, and that numerous portion of the population of Great Britain who have a taste for ornamental plants. From him the nephew has received many of his superior roots.

Besides the commendable exertions of Mr Walker to present an interesting display of well cultivated and choice tulips, he has eminently succeeded in raising from imported plants and seed, nu-

merous new varieties of the *Viola grandiflora*, — the most admirable of that large family of charming flowers. He has, in fact, made this large and brilliant Pansy, known to New England, by the extensive seminaries which he has established, and the multitude of plants which decorate his ground. He had seven hundred varieties in bloom at the time his tulips were in flower, and the corollas of some of them, were more than two inches in diameter. He also cultivates the ranunculus,—one of the most delicate, beautiful, but difficult of all herbaceous perennial plants, to bring into a full and perfect florescence. He has two beds, this season, containing over two thousand tubers, and one hundred and thirty kinds, which, if the weather should not have been too hot, will present an exhibition of flowers as rare and interesting as that of his tulips.

To the above named plants and the Dahlia, Mr Walker has devoted his sole attention, leaving to others the vast field of floriculture, for the selection of their favorite flowers, and the distinction they have attained, or may acquire, from the intelligence, skill, and industry bestowed on their cultivation, and that complete success, which so amply rewards the ardent amateur.

The necessity of a division of attention to the several departments of ornamental and useful plants, is as obvious, as that of labor in the mechanical arts; and the advantages derived therefrom are as certain, as they are conspicuous and satisfactory.

Colonel Wilder is unrivalled, in this country, in the number, variety and successful cultivation of the Camellia, the Rhododendron, Azalea, and Rose, having over three hundred kinds of the first, and upward of four hundred of the last named plants.

Mr Manning, of Salem, has the largest variety of pears, he having made that delicious fruit his favorite object of culture, while the apple and plum have claimed his next regard. Mr William Kenrick is well known for his extensive and well managed nursery of forest, fruit, and ornamental trees, shrubs, and herbaceous flowering plants; and for several years he has made most honorable efforts to introduce the Morus Multicaulis and other valuable species of the mulberry, for affording the best aliment to the silk worm. He has also the merit of establishing the first extensive nursery in New England, and has published a very interesting and useful work on fruit trees. He, with Mr Manning, first succeeded in obtaining Mr Van Mon's new kinds of pears, and he has a collection of that kind of fruit trees, of great value, from the number of varieties.

Mr Pond, of Cambridgeport, has become eminent for rearing large numbers of Plum trees of the most choice varieties, and also for his superior mode of raising asparagus.

The Messrs Winship of Brighton, have a vast nursery, a large green-house and forcing-house, in which are collected a greater number and variety of useful and ornamental trees and plants, than are to be found in any other like establishment north of Long Island. Their importations of European forest trees, and exotic shrubs, and herbaceous flowers, have been extensive, and contributed, in an eminent degree, to extend a taste for rural embellishment in the eastern section of the Union. Their collection of foreign new kinds of Roses, rivals that of Col. Wilder, as they have some 500 varieties. Pæonies have also claimed their special attention, and they exhibit nearly 40 kinds.

Other highly commendable efforts have been made to multiply the fruits, culinary vegetables, and plants of all kinds, and especially by seeds. The establishments of Joseph Breck & Co., and of Hovey & Co., are well known, for they have so far kept pace with the rapidly increasing demand, and have so faithfully discharged their very responsible duties, in either raising or collecting the best varieties and of the most perfect quality, that they have merited and received the grateful acknowledgments of their numerous fellow citizens, who "drive their team afield," or delight in the society, or the culture of the silent, yet eloquent, beautiful, useful, and ever interesting families of the vegetable realm.

As proprietors and editors of three of the most valuable agricultural and horticultural publications in this country, we are under the greatest obligations to them; and it is earnestly to be wished, that for all their diversified and indefatigable labors, they should receive that encouragement and reward, which will render their patriotic exertions annually more profitable to themselves, and useful to the public. In the diffusion of intelligence among the farmers and gardeners, and the extension of a taste for their honorable and important occupations, as well as for the improvement of the aspect of the country generally, by inducing a greater attention to all the branches of cultivation, those periodicals have already accomplished much, and if they receive that liberal patronage to which they are justly entitled, the beneficial results will be as universally conspicuous as they are desirable.

The new garden at Mount Washington, with its ranges of green and forcing houses, is becoming an object of great interest, and will soon rank among the first, which are now the most celebrated, as the intelligent and experienced Mr McCollough has fully shown that he is well qualified for the station he has assumed.

The Charlestown Vineyard, with its departments of other fruits, conservatories, graperies, and valuable, as well as ornamental plants, has given a well deserved reputation to the Messrs Mason, from the successful manner in which the whole of their spacious establishment is managed.

The valuable, new, and excellent varieties of the strawberry, with which our market is enriched, have rendered Mr William Mason of Charlestown, and Mr J. L L. F. Warren of Brighton, celebrated, for the zealous and successful exertions they have made to grow that delicious fruit. The Downton, Wilmot's, Keen's Seedling, Roseberry, Mulberry, Methven Castle, and other distinguished new kinds, are now abundant and maintain the high character which they had acquired in England.

Mr Town, of Snowhill street, in Boston, has a neat and well conducted green-house, which may be truly called a floral gem.

There is a humble little cottage garden on the Dorchester road, near Grove Hall, which reflects great credit on the unassuming and respectable old man, who carefully tills it with his own hands; and many a passer-by has stopped to admire his beautiful collection of choice varieties of pinks. May he be made happy in his commendable efforts to contribute to the happiness of others, is a blessing which every visiter must spontaneously bestow on the venerable Meller, and at the same time, attempt to enable him to realize the benediction, in the purchase of a single root, or a bouquet of flowers. How interesting and imposing is it to behold the aged calmly and studiously engaged in the culture of a garden of flowers. They appear to be appropriately occupied in a kind of religious rite, and as if actuated by a presentiment that their end was near, devoting their last moments in the preparation of the materials of a garland for the decoration of their own grave, and thus seeming to ask the grateful tribute of approbation, from a life industriously and reputably passed, and now approaching its close, in the anticipation of that good name which all desire, and hope encourages us to believe may have been attained, and will be perpetuated when "we sleep in the narrow house of death."

There is very much wanted a large nursery of native forest trees, where they shall be raised in such quantities, as to be afforded to purchasers at as cheap a rate as they can import them from England and Scotland. So great is the demand, that not only our nursery-men, but many individuals, have recently imported vast numbers. Two gentlemen, one residing in Watertown, and the other in Salem, have received ten thousand each, this season, which cost only a few cents apiece. The quantities which might be sold, if furnished at even a liberal price, would be enormous; but the expense of obtaining trees from the forest, the mutilated manner in which they are taken up, and the consequent difficulty of making them flourish vigorously, deters those who would be glad to embellish their estates, or plant out woodlots, or groves for timber, from making the experiment.

The rapidity of the growth of seedling trees, reared in nurseries, compared with such as are selected from the forest, is well known to those who have attempted the culture of both kinds.

A pleasing illustration may be seen on the magnificent ground of Col. Th. H. Perkins, who imported about thirteen years since, 15,000 plants, which were not more than two feet high, and now they are large, healthy and beautiful trees.

Very respectfully,

Your obt. servant,

H. A. S. DEARBORN.

Hawthorn Cottage,
Roxbury, June 20, 1838.

Art. IV. — *Remarks on the Propagation of the Dahlia.*

Every cultivator of the Dahlia is aware of the facility with which it is propagated by cuttings of the young shoots, plunged in a little bottom heat. Indeed, from a single root, under proper treatment, several dozens of young plants may be raised in a short space of time. Consequently, this method is universally adopted by nurserymen; they annually requiring a large stock of young plants for sale; and by individuals anxious to propagate extensively a new variety. But it ought not to be practised by amateurs or others, anxious to obtain fine perfect flowers for exhibition or otherwise. I speak

advisedly, and from experience, when I assert, that plants raised from cuttings do not produce equally perfect flowers, in regard to size, form, and fulness, with those produced by plants grown from division of the tubers, the old method of propagating the dahlia. It has been said that plants raised from cuttings flower more abundantly than those raised by division; but to this I am not prepared to subscribe.

Physiological botany readily accounts for the different results of the two methods. The starch or feculent matter, stored in the roots, is intended by nature for the nutrition of the animal shoots, not only, until the tubers have formed, at the commencement of the vegetating season, the spongioles necessary for the absorption of the required quantity of pabula; but also when that the spongioles are unable, from drought, or other causes, to absorb a sufficiency of nutrient matter, to sustain the rapidly developing and vigorous vegtation.

Plants propagated by cuttings cannot of course, absorb the nutriment prepared and stored, during the last season, in the tubers of the mother root; and are forced to form spongioles and tubers for themselves. But the fecula contained in these latter is not, till towards the end of the year, sufficient in quantity, or sufficiently ripened by the deposition of carbon, to be in any way serviceable.

The potato might be propagated by cuttings of the young shoots, in the same way with the dahlia; but such plants would not, in the early stages of their growth, be nourished by the starch of the tubers; and, therefore, would neither be so strong and vigorous as plants raised in the usual method, nor would they yield a return equal in weight or quantity.

It is well known that tubers and bulbs, when placed in damp situations (the potato for instance, in a damp cellar,) develop their leaf-buds; and that these continue to grow and elongate, without the assistance of rootlets or spongioles, so long as there is any fecula in the tuber or bulb; but that when this is exhausted the stem withers and dies. We hence perceive how important the nourishment derived from this substance is to the vigor of the plant, and why whole tubers of potatoes produce larger crops than are produced by cut sets. Hence, too, we may learn why perfectly ripe sets are so much more certain of success than unripe ones; the fecula in the former being so much the more abundant, and more

perfectly elaborated. To the unripeness of the sets is attributable the failure of the potato crops in some parts of Scotland, in the autumns of 1835 and 1836, and the consequent misery and starvation of the unfortunate peasantry.

I feel no doubt that much of the disappointment and dissatisfaction experienced by buyers of new varieties of the dahlia, arising from these so rarely answering the expectations formed of them, is the result of the system of propagating from cuttings. A good seedling is raised: the grower is naturally anxious to make the most he possibly can of it; he therefore plunges the root in heat, and strikes every cutting he can force it to throw out. The young plants are consequently weak and unhealthy, rarely throw out a good flower during the whole season, and are, probably discarded, as undeserving of further notice. My first plant of Brewer's Rival King was a cutting from a root, which had been much worked, and consequently, did not show a good flower during the season. The next year, I grew it from tubers, and also from cuttings: the latter always produced imperfect flowers, but the former beautifully perfect ones. With many other varieties, I have found the same difference between plants raised from cuttings and those from tubers.

I would therefore recommend, in order to secure a good and satisfactory bloom, that the roots be laid, in March, in a damp warm place, such as a forcing-house, gentle hot-bed, or even a cellar; and that when the buds show themselves, each root be divided into as many pieces as may be required, retaining a bud to each piece; and that they be then planted separately in 48-sized pots. The after-treatment is the same as for plants raised from cuttings.—*Gardener's Magazine.*

ART. V.— *The Cultivation of Truffles, or Instruction for artificially raising and making large Plantations of Black and White Truffles, in Woods, Shrubberies, and Gardens.* By ALEXANDER VON BOROHOLZ.

(Continued from last page 270.)

THERE are some varieties of truffles which differ in the greater or less degree of roughness of their external rind, in a stronger smell,

resembling that of garlic, and in a lighter or darker color. Amongst all truffles, the white variety is of most value, and is preferred to every other. It grows in Upper Italy, chiefly in Piedmont. Its surface is of a yellowish brown, or pale grey-yellow, covered with protuberances resembling warts. The veins in the inside are more delicate than in the black kind, and are of a reddish yellow color. Between the veins, the flesh of truffles that are fully formed, and their sap-vessels and glands, are of a reddish color. The smell and taste of the white truffle are much superior to those of the black, and on that account it is more deserving of cultivation. Only the first plantation requires to be circumstantially attended to, as living pieces can seldom be procured, and to plant dead ones in new plantations is useless. Since this white truffle never degenerates to the black, but constantly produces the same, it appears to be not a variety, but a particular species. It is also found in vineyards, meadows, and even ploughed fields; but the black ones are found only near to forest trees.

In laying out truffle beds a distinction must be made between wood land and garden land. The former needs not much preparation, and promises a surer profit than a garden land, with which must be artificially mixed those species of earth that, in the latter, have for several years been accumulated by nature. He, therefore, who can take for new truffle beds wood land, especially that which for centuries has produced the above mentioned trees, spares both time and expense.

But, whether the truffle plantation be made in a wood or a garden, the first requisite is a somewhat moist soil in a low situation. In level ground, such soil is generally found in the vicinity of brooks, rivers, lakes, and meadows. The ground itself, however, must not contain any sharp or sour component parts, but must be mellow and fertile. Least of all are adapted to the purpose situations in the neighborhood of morasses or turf moors; and especially those low situations the subsoil of which is full of saline or sour matter. This is easily known by the reeds, horsetail (Equisetum), coarse kinds of grass, and mosses, which grow upon their surface, and, whether green or dry, are rejected by cattle and sheep, or only eaten by them from excessive hunger.

He who has no such mellow soil, in a depressed situation, upon his property, may most easily form it by art in the neighborhood of

springs, or at the foot of a rising ground; but the first plantation is thereby proportionally rendered more expensive. The ground designed for the cultivation of truffles must, in the first place, be dug out from 4 to 5 feet deep, and be lined at the bottom, and on the sides, with a stratum of clay or very fat loam of a foot thick, that the spring water which is conducted to it may not strain through, and run off. If the subsoil be loam or clay, the thickness of the stratum of clay to be placed upon it may be diminished; but, if it be a dry sand, it must be more than a foot thick. This artificial depression is then filled with earth artificially prepared, and now the spring, or small brook, is turned upon it. Truffles certainly require a moist soil, but they cannot endure boggy ground or standing water; a ditch must, therefore, be cut to carry away all superfluous water. This ditch is either opened or shut accordingly as a superfluity or want of water renders necessary. But if, in very hot dry summers, the supply of water should itself fail, the truffle beds must be sufficiently moistened with pure river water. This is the expedient to which recourse must be had in dry situations, that neither possess a spring, nor a small brook for watering a plantation of truffles. Since only small beds, and not large fields, are taken for the cultivation of truffles, the greatest care may be taken in the preparatory steps, the expense of which will, however, never be so considerable as to be much felt by the landed proprietor. He, therefore, who has upon his property no such mixture of earths as the growth of truffles requires, must endeavor to obtain it artificially.

We find the most and finest truffles in a light, ferruginous, calcareous soil. Such a one must, therefore, also be given to the plantations. This is found naturally only in particular situations; for which reason truffles do not grow everywhere. That which is accidentally in the new plantation is looked upon as a welcome present, and those materials only are mixed with it which the raising of truffles indispensably requires. A ferruginous calcareous soil is generally too compact, seldom too loose, and frequently not sufficiently ferruginous. The first fault may be remedied by the addition of ferruginous sand; the second, by a mixture with loam; and the third may be remedied by beating ferruginous sandstone (which is to be had almost everywhere) to fine sand, and mixing a fourth at the most a third part of it, with the natural soil. If ironstone is, not to be had, the want of it must be supplied by iron shavings,

iron filings, sparks and other cheap small refuse which falls from iron in manufacturing it: this must be added to the mixture of earths, and made to rust and dissolve by the addition of moisture.

A calcareous or chalky marl forms the groundwork of all artificial mixtures of soils for the cultivation of the truffle. When this is to be had in the neighborhood, it is mixed with the fourth part of iron sandstone. If this marl be not in the environs, then finely beaten calcareous stone or beaten chalk must supply its place: to this must be added from the fourth to the third part of ferruginous sand, and the whole mixed together as uniformly as possible. With this artificial calcareous marl the truffle-bed (which has been dug out from two and a half to three feet deep) is filled up a foot high, in the place of the natural earth. It is advantageous when the pit, which is dug out for that purpose, before it is fixed with the new soil, is lined on the sides and bottom with unburnt calcareous stone. By this means, not only will mice, and several kinds of worms, be prevented from establishing themselves in the new truffle beds, and preparing to destroy the young germs of the truffles, but sudden heavy rains will be prevented from occasioning an injurious mixture of the different kinds of earth. Where calcareous stone is not to be had, sandstone may be used instead of it, especially if it contains iron; or, at all events, either other natural stones, or artificial ones made by the hands of men, may be made use of. The bottom of the pit must not, however, be paved so as to be water-tight, in order that the water may sink into the subsoil, and not cause an injurious bog, instead of the moist depression that is intended.

If, when the pit is dug out, a compact subsoil is met with, for example, a loamy bottom, the paving of the bottom of the pit is superfluous: it would obstruct the binding of the under strata with the new-laid bottom of the truffle plantation. It sometimes happens, that, in digging out the pit, a bed of clay is met with, which is impervious to water. In such a case, it is better to leave the place and choose another, than to spend money upon the plantation, and, instead of raising truffles, only to make a small bog.

All the above preparations are necessary for wood lands, and for plantations in large gardens and English shrubberies; but the further filling up of the pit is different for each place. In woods, the soil contains much vegetable matter; but that is not enough, especially when an artificial mixture of earths is undertaken. In order to obtain a very nutritious vegetable earth, let pure cowdung

be carried into heaps in the spring, and left to fall into earth in the course of the summer. That is best which is collected as fresh as possible on pastures and commons. That it may not lose its nutritious matter through drought and heat, the heaps must be made in a shady place, be turned from time to time, and, in dry weather, be often moistened with cow's urine, or with soft river water. This watering must not be so abundant as to allow the dung to become lixivated, in which case its most valuable powers will be communicated to the ground underneath.

In autumn, when the leaves fall from the trees, the dung is for the greatest part converted into earth. The fourth or fifth part of this earth is to be added to the natural wood soil; and of fallen oak leaves, or, if these are not to be had, of fallen hornbeam leaves, as much in bulk as half of the mixture amounts to: the whole must then be carefully mixed together. The pit is to be completely filled with the mixture, which is to be covered with a layer of oak leaves, of from four inches to six inches thick. A wood soil, with much vegetable earth from oak trees, requires a smaller addition of oak leaves than a soil that contains less of it. The greatest is required by the mixture of one half or the third part of natural wood earth with the before-mentioned ferruginous calcareous marl. In this case, which often occurs, as many leaves are added as the proportion of the calcareous earth occupies in space; and the pit, when filled, is covered over with a thick layer of leaves.

There is no fear of this cover of leaves being carried away by the storms that prevail in autumn and winter, as the truffle plantations are made in low situations, sheltered by trees, and not exposed to a strong current of air. If, however, this were not to be avoided, the scattering of the leaves may be prevented by some earth taken from the mixture being spread over them, or by small branches of oak being laid upon them, and secured by stones. Such a cover of leaves is of great service to the planting of truffles; since by the moisture of the winter the most efficacious matter is extracted from it, and communicated to the soil beneath. For this reason, a new cover must be laid upon it every autumn. Early in the following spring, the uppermost layer, being exhausted by the air, is to be taken away; but the under and moister one lightly dug in, or, which is still better, raked flat, lest the tender germs of the truffles should be injured or destroyed; but, when the truffle plantation is first made, the whole cover must be deeply dug down.

Every previous preparation is thus made for the cultivation of truffles. We now come to the mode of causing them to be produced. Since they are neither sown, nor, like animals, propagated by eggs and young ones, the only thing that remains for us to do is, to cause the soil to produce truffles. We know from experience that many forms (viz. crystallizations) are easily produced, when bodies of their own sort, already formed, are introduced into the mass of forming matter. Thus, sugar easily forms into crystals, when crystals of the same sort are hung in a fluid mass saturated with saccharine matter. Fungi are also produced in a similar manner, where living bodies of the same kind, or such as have not long been dead, or even parts of them lately pulled off, meet with a soil adapted to them. Thus, mushrooms thrive well if horse's or ass's dung be mixed with pieces of this fungus. The same takes place with truffles; only here greater circumspection is requisite.

The mushroom raises its head above the dark earth, and lives and thrives in the open air, and in warm sunshine. When taken from its parent soil, neither the operation of the circumambient air, nor the gentle access of the sun's rays, immediately destroys it. As long as its body contains sufficient moisture, it continues to live, and may, without much precaution, be removed from one place to another. If the journey does not last too long, it still retains the degree of vitality necessary to impart to the new soil the property of producing young mushrooms. On this account, good mushroom beds, that are carefully made, seldom fail, and the expectation of a good crop is constantly justified.

Not so the truffle. It cannot bear the immediate access of the air, and still less of the sun's rays, but dies when it is exposed to them, as quickly as a delicate fish when taken out of the water, or an intestinal worm when torn from the animal body of its habitation. A dead body of a truffle, which, moreover, soon becomes putrid, cannot, even under the most favorable circumstances, induce in the new habitat assigned to it a formation of young fungi of its own species. This is possible only to the living truffle; but its complete vitality is hardly sufficient to give such a direction to the powers subsisting in the strata of earth, as to produce and form new truffles in a soil that had never produced them; but, if this power of production is once awakened, it is easy to retain it for years.

(To be continued.)

Art. VI. — *List of New and Rare Plants, described in recent English Publications.*

1. *Morna Nivea.* Snowy. (Asteraceæ syngensia polygamia æqualis.) An interesting half hardy annual, raised by R. Mangle's, Esq. from seeds sent from the Swan River colony. The present species very much resembles M. nitidia, excepting the flowers, which are white, whilst those of the other species are yellow. The flowers of this genus are of the character which are usually termed everlasting, keeping for years after being gathered, which gives additional interest to their neatness. The flowers tems rise to about half a yard high, produces a profusion of blossoms during the summer and autumnal months.

2. *Passiflora Nigelliflora.* Nigella flowered Passion Flower. (Pasionflorieæ. Monodelphia pentandria.) Mr Tweedie discovered this species at St Jago d'Estero in 1835, and sent it to the Glasgow Botanic Garden, where it bloomed in the stove during last summer. The plant much resembles P. citiata or gossypiifolia. The flowers are white, each about an inch and a half across.

3. *Thysamotus Proliferius.* Proliferous. (Liliaceæ. Hexandria monogynia.) This very singularly beautiful green-house perennial was raised by R. Mangle's, from seeds sent from the Swan River colony. The flower stem rises about two feet, and bears two or three umbels of its singular fringed flowers, the umbels being two or three inches apart up the stem. Each umbel contains from eight to a dozen blossoms, and a blossom is near an inch across. The petals are of violet purple, having a lilac line up the middle of each. The edges of the petals are densely feathered with fringe. It is a very neat and desirable plant, well meriting a place in every green-house. Thysamotus, from thysamotus, fringed, referring to the edges of petals.

4. *Aristolachia Saccata.* Pouch-flowered Birth Wort. (Aristolechieæ. Gynandria hexandria.) This very singular flowering plant is a native of Silhet, and was sent from the Calcutta garden in 1829, to the Royal Botanic Garden, Edinburgh, where it bloomed last September. The plant is a twiner, growing to a considerable length. The leaves oval, heart-shaped, from a foot to fifteen inches long, and four to six broad. The singularly formed flowers are produced numerously in racemes; each flower is about five inches

long, pouch formed, the tube turning upwards from the middle, and bending parallel with the other portion of the tube; the inside of the tube is a whitish yellow. The mouth and throat of the tube of a bright golden yellow, with an edging of deep purple. The outer side of the tube is of a rosy white and pale purple.

5. *Boronia Crenulata.* Crenated leaved. (Rutaceæ. Octandria monogynia.) A very handsome flowering species, which is a native of King George's Sound, where it was discovered by Mr Menzies. It bloomed in the green-house of Messrs. Loddiges's at Hackney, and forms a neat and bushy plant, with deep green foliage. It produces a profusion of flowers of a bright rosy-red color. Each flower is about a half an inch across. This species deserves a place in every green-house. Like the rest of the species, it requires to be grown in an airy and light part of a green-house. The most suitable soil for all the tribe is a sandy peat, using a free supply of drainage, and frequently shifting each plant into a pot a size larger. If over-potted they often die. Baronea, so named in compliment to Boranes, who was servant to Professor Afzelius; this faithful servant went with his master to Sierra Leone, where he died.

6. *Comus Scabiosoides.* Scabious-like. (Asteraceæ. Syngenesia superflua.) A native of Mexico, from whence seeds were sent to J. F. Dickinson, Esq. and by that gentleman presented to the Horticultural Society of London, in whose garden it bloomed last year. The flowers are produced numerously, each blossom being about an inch and a half across, of a deep crimson inside with the stamens, forming a yellow eye; outside of a deep rosy red. It is a very handsome species, well worthy a place in every flower garden. It is supposed very probably, that the flowers of the genus will become double, similar to the Dahlia. There are several other species of this pretty tribe, not yet introduced into this country, with pink, bright yellow, or deep purple flowers. There are now, annually, importations of Mexican seeds into this country; we may therefore conclude that seeds of these beautiful plants will soon be introduced.

7. *Erica Chloroboma.* Green tipped Heath. (Ericaceæ. Octandria monogynia.) This very pretty flowering species is cultivated by Mr Young, nurseryman Taunton, Somersetshire, where it has bloomed. The plant is of an erect habit, and the flowers are pro-

duced upon the young shoots in vast profusion. The flowers are near three quarters of an inch long, of a beautiful crimson color, having a green tipped end. They hang pendulously along the shoots. It is a very neat and desirable species.

8. *Erica Florida;* var. *Campulata.* Drooping round headed Heath. This very beautiful flowering heath is cultivated in the superb collection at Bothwell Castle, where it was raised from seed by the very skilful gardener, Mr Trumble, in 1835, and though but two years old, the plant is near a yard high, and has produced a profusion of blossoms, of beautiful rose color, and their campanulata form, show them prettily to view. Each blossom is about a quarter of an inch long, and the same at the mouth. It is a very desirable variety of this interesting genus.

9. *Goveria Liliaceæ.* Lily flowered. (Orchidaceæ. Gynandria. Sononym maxillaria liliacea.) A native of Mexico, growing under the shade of trees, or sometimes grows over their roots. It is a tuberous plant, having the habits of the Bletia, the flower stem reaching about a foot high, it is sulphur white, spotted and streaked with reddish-purple. The first notice of this plant was by M. Hernandez, who describes it by the name of Iztactepetzacuxochitl Icohueyo. The plant is very rare in this country, and probably in no collection but that of George Barker's, Esq. of Birmingham.

10. *Mamillaria Atrata.* Dark green Cacteæ. (Icosandria monogynia.) A very handsome flowering species. This truly interesting and singular tribe of plants, grown in the celebrated collection of Mr Mackie of Norwich. The flowers are produced numerously around the top of the fleshy trunk. Each blossom is upwards of an inch across, of a bright rosy red color, with the anthers forming a yellow eye. The singular form of the plant, and the arrangement of the numerous pretty blossoms contribute to recommend it to every cultivator of this tribe of plants.

11. *Pentstemon Crassifolius.* Thick-leaved. (Scrophulariaceæ. Didynamia angiospermia.) The late Mr Douglas discovered this pretty species on the north-west coast of North America, who sent seeds to the London Horticultural Society, at whose garden it bloomed last year. The plant is of a suffructicose habit, growing a foot high, quite hardy. It is of a free flowering species, produced in racemes. Each flower is about an inch and a half long, of a pretty lilac color. The lower part of the tube is of a bright rose color.

It is a very desirable plant for the flower garden, its dwarf habit, and pretty flowers alike recommending it.

12. *Philadelphus Hirsutus.* Hairy Syringa. (Philadelphaceæ. Icosandria monogynia.) This species was found by Mr Nuttall in Tennessee, on the rocky banks of French Broad River, near to warm springs. It is a hardy shrub, growing not more than three or four feet high, blooming in the middle of July. The flowers are white, each about an inch across, without fragrance. It grows well in a rocky situation.

Art. VII. — *Miscellaneous Matters.*

Forms of Flowers.—It is not a little amusing to watch the progress of flowers, from bad to better, and even to good forms. It was some time before the double dahlia was produced with other than pointed or quilled petals, and now they would not be looked upon with these faults. The heart's-ease, in the wild and natural form, is despised — the nearer they now approach the circle, the more they are prized. The Camellia Japonica is the most beautiful in the country of its flowers; but all the most double and perfect have pointed petals — all that have not are confused or semi-double. It is only now breaking away from the forms which have been prevalent so long. Three seedlings have been exhibited this season with the most exquisitely formed petals, making up into a beautiful form of flower. One raised by Mr Luttworth was decidedly the finest form that could be imagined, the petal was very thick, of a rich dark red color, and it had beautiful foliage. The second was a bright rose-colored flower, of excellent form, not quite so high in the crown, and was exhibited in the best twelve blooms sent out to Her Majesty, as well as in the collection, in the month of February, and, like the one already mentioned, is very distinct from all others. This was the flower named, by permission, Rosa Victoria. The third was raised at Richmond, and though different from the other two, possesses the principal improvements—fine round thick petals; in color it is darker than Rosa Victoria, and lighter than Mr Luttworth's. The three are worthy of a place in the most select and beautiful collections, though it will be some time, of course, before

they can be procured. They are now growing as specimen plants, and except an ugly branch offers itself as a sacrifice, neither will be promulgated. As the Camellia seems now to be coming into universal cultivation, we shall be glad of information as to the character of new flowers and varieties but little known, for it will serve as a guide to some of the younger growers. The two varieties, let out by Messrs Brown, are additions to the general collection—Louis Philippe being distinctly violet scented, and is a well-growing deep red color, good-sized flower, in which there are many stamens visible, and which give, when perfect, a strong perfume. The other, Cardinal, is the thickest petaled, and the deepest colored single flower in cultivation; several other seedlings have been shown this season, but there was nothing remarkable about them.—*London Horticultural Journal.*

EXHIBITION OF HEART'S-EASE.—The Royal Society have taken up the subject of heart's-ease, about the showing of which there is as much trickery as ever disgraced the dahlia or carnation, pink or ranunculus. Where flowers have been wanting in the quality of flatness, pieces of glass, with weights upon them, have been used to press them down, and nothing could exceed the impudence with which this trick was carried on. The Royal Society have lent their rooms to the Metropolitan Society of Florists, for a show of auriculas, on Wednesday, May 2; and by way of rendering it more attractive, they of themselves give several prizes—one or two are for heart's-ease, and the condition of showing is, that if a single flower in the whole collection shall have been pressed or artificially flattened, it shall disqualify the collection for a prize, even if it be the best, and it will have the very best effect; instead of the flowers being like so many plasters on the box, with their textures spoiled their petals puckered, they will lie as they grow, they will exhibit the faults they grew with, and the beauties that belong to them; and it is only by making this a condition, that gentlemen can ever compete with florists. Gentlemen will not condescend to the trickery of exhibiting; and the only way to induce them to enter the lists, is to have things exhibited as they grow. The only assistance from art that nature ought to have, should be in cultivating, not in dressing, in the growth, not in the manufacture; and every step towards encouraging the one, and checking the other, will be hailed with pleasure by all who love the science.—*Floricultural Cabinet.*

QUINCY MARKET.

[Reported for the Horticultural Register.]

APPLES, Russet,	barrel,			3 50
Dried,	pound,	8		9
BEANS, White, Foreign,	bushel,	1 25	a	1 50
Domestic,	do.			2 25
String	peck,			25
BEETS,	bunch,			6
BUTTERNUTS, green,	hundred,			50
BLUEBERRIES,	box,			17
CARROTS,	bunch,			6
CRANBERRIES,	bushel,			3 00
CUCUMBERS,	dozen,			25
CURRANTS,	quart,			6
CHERRIES,	do.	10	a	10 1-2
CABBAGE, early York,	per head,			6
GOOSEBERRIES,	per quart,	12	a	17
LEMONS,	per hundred			2 00
LIMES,	" "	50	a	75
LETTUCE,	head			3
ORANGES,	hundred			3 00
ONIONS, new,	bunch,			6
PEARS,	quart			25
POTATOES, new,	bushel,			2 00
old,	do.			50
RADISHES,	bunch,			3
RASPBERRIES,	box,	25	a	37 1 2
SQUASH, summer,	dozen,			25
STRAWBERRIES,	box,	25	a	37 1-2
TURNIPS,	bunch,	6	a	10

Russets are the only Apples now to be found in the market.

A few new Pears have appeared under the denomination of "Independent Pears," but very small and of inferior quality. Of small fruits there is an abundant supply.

The Vegetable Market is well stored with the usual products of the season.

Boston, July 12, 1838.

NOTICE.—In our next number we shall insert the plates to which reference is made in the valuable article on the Camellia, translated from the French by Gen. H. A. S. Dearborn. They should have appeared in the present number, but we found it impossible to get them ready, as it requires much more time than we anticipated to color them.

SYNOPTICAL TABLE

OF THE

COLORS OF THE GENUS CAMELLIA.

CLEAR ROSE.

Denomination of the Painter.		Denomination of the Dyer.
Dominant color: deep rose lake, Naples yellow and vermilion.	No. 4. 	Clear Cherry.
Dominant color: clear rose lake, Naples yellow and vermilion.	No. 3. 	Do.
Dominant color: clear rose lake, Naples yellow and vermilion.	No. 2. 	Do.
Dominant color: clear rose lake and Naples yellow.	No. 1. 	Do.

FIRST GAMUT.

Camellia Japonica.

TYPE.

	Denomination of the Painter.		Denomination of the Dyer.
DEEP CHEERY RED.		No. 7.	
	Dominant color: deep carmine, mixed with vermilion.		Deep Crimson.
		No. 6.	
	Dominant color: deep carmine, mixed with more vermilion.		Clear Crimson.
		No. 5.	
	Dominant color: carmine mixed with vermilion.		Deep Cherry.
		No. 4.	
	Dominant color: carmine mixed with more vermilion.		Do.
CLEAR CHERRY RED.		No. 3.	
	Dominant color: carmine lake and vermilion.		Clear Cherry.
		No. 2.	
	Dominant color: carmine lake, rose lake and vermilion.		Do.
		No. 1.	
	Dominant color: carmine lake, rose lake and vermilion.		Do.

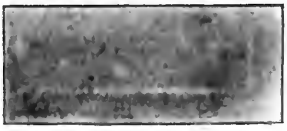
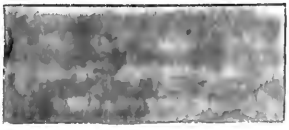
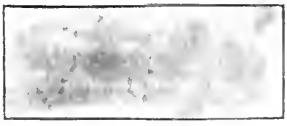
	Denomination of the Painter.		Denomination of the Dyer.
ORANGE RED, *more or less deep.*		No. 2.	
	Dominant color: rose lake and light red cinnabar.		Common Salmon.
		No. 1.	
	Dominant color: rose lake and very light red cinnabar.		Clear Salmon.
CARNATION COLOR.		No. 3.	
	Dominant color: rose lake and cinnabar.		Pale Flesh.
		No. 2.	
	Dominant color: rose lake and cinnabar.		Do.
		No. 1.	
	Dominant color: rose lake and cinnabar.		Do.

SECOND GAMUT.

Camellia Japonica.

TYPE.

ORANGE RED, *more or less deep.*

Denomination of the Painter.		Denomination of the Dyer.
Dominant color: deep carmine mixed with red cinnabar.	No. 8. 	Deep Poppy.
Dominant color: deep carmine mixed with more red cinnabar.	No. 7. 	Clear Poppy.
Dominant color: carmine and red cinnabar.	No. 6. 	Common Scarlet.
Dominant color: deep lake and red cinnabar.	No. 5. 	Scarlet of Nimes.
Dominant color: rose lake and red cinnabar.	No. 4. 	Deep Salmon.
Dominant color: rose lake and light red cinnabar.	No. 3. 	Less Deep Salmon.

THE

HORTICULTURAL REGISTER,

AND

GARDENER'S MAGAZINE.

AUGUST 1, 1838.

ART. I.—*Monography of the Genus Camellia, or An Essay on its Culture, Description and Classification.*

(Continued from page 257.)

78.* C. *Decora.*—Leaves two and a half inches wide and three and a half long, obtuse-oval, almost round, dentated, a little veined, of an obscure green, very glossy; bud very large, scales whitish at the summit and dark yellow at the base of the calyx; flower four and a half inches in diameter, double, cherry-red, No. 3; petals of the exterior in three rows, almost two inches broad, reflex, festooned, crenated rather deeply at the summit; those of the interior small, rumpled, short, forming a large centre and containing some concealed stamens; flower depressed, like that of C. Elegans Chandlerii.—*Magnificent.*

79. C. *Dorsetti* or *Parthoniana.*—Leaves large, ovate, lanceolate, very acuminate, flat, near together, of a handsome shining green; sometimes spotted with yellow: bud very large, rounded; scales of a yellowish green, flower very large, nearly five inches in diameter, very full, of a pale cherry-red, No. 1; mixed with several shades of rose, or white; petals large, close, imbricated, irregular, numerous; those of the centre smaller, arranged without order, marked with red and white spots. This flower, which is of a rosette form, blooms with difficulty.—*Magnificent.*

80. C. *Dionthiflora, Cariophyllæflora, Knightii,* or *Carnation warrata;* it is the same as the C. *Knightii.*

*In the last number of the Horticultural Register the following variety was accidentally omitted.

75. C. *Colla.*—Quite a vigorous shrub; branches slim; leaves medium, resembling a little those of Camellia Rubra simplex; flower double, medium, well formed, of a handsome cherry-red, No. 3.—*Pretty.*

C. *Carolus* and C. *Camptoniana* should be Nos. 76 and 77, instead of 75 and 76.

81. C. *Excelsiana.*—Leaves two and a half inches wide and three and a half long, oval, acuminate, a little carmined, nerves very salient, of a deep green; bud oval, acute, scales green; flower from two and a half to three inches in diameter, double, of a cherry-red, No. 3; petals reflex, not numerous; those of the circumference rather broad, those of the centre small, rumpled, confused, and intermingled with stamens.—*Passable.*

82. C. *Exoniensis.*—Branches short, leaves of a medium size, roundish, oval, acuminate, a little carmined, thick, deeply dentated, almost all curled, or undulating and reflexed, nerves small, of a deep green; bud elongated like that of C. *Variegata plena;* scales calycinal, at first green, and then blackish; flower in the form of a rose, very large, four inches in diameter, double, of a pretty cherry-red, No. 2, which changes gradually from the delicate to the vivid; petals well arranged, broad, erect, and distorted; those of the centre a little rumpled, and striped with white; a few stamens which are nearly all abortive and in the petaloid state.—*Superb.*

83. C. *Elegans Chandlerii.*—Leaves large, two inches broad and four long, ovate, lanceolate, nerves not very apparent, much dentated, and of a dirty green; bud large, rounded, scales greenish; flower very large, very double, of a cherry-red, No. 2; three inches and ten lines in diameter, and somtimes more; petals of the exterior, to the number of twenty, large, oval, red, veined with rose, and often spotted with white; those of the interior rows, to the number of from 140 to 160, long, narrow, numerous, arranged in fascicles, striped with rose, which united form a depressed sphere. —*Magnificent.*

84. C. *Elegantissima.*—Leaves a little crenated on the border, summit very acute; some of them a little warped, or undulating, of a deep green, very glossy; flower full, three and a half inches in diameter, of a handsome cherry, No. 1; sometimes of a rose tint, shaded with carmine; petals of the circumference in two rows, large, imbricated, and form a regular cup; those of the centre numerous, folded like a demi-cornet, compact and even, affording together, a very rich group and of a pleasing form. There is another Camellia under this name, the ground of which is white, striped with red. See this name at the end.—*Very handsome.*

85. C. *Elegans.*—Shrub vigorous, branches numerous, erect; leaves broad, deeply dentated, terminated by a long point, borders rolled back; bud acute; scales blackish; flower large, single, of

an ordinary cherry-red; petals veined with purple, and rather deeply notched at the summit. There is another variety, of this name, with a double flower, which is very handsome.

86. C. *Empereur d' Austriche.*— Leaves very large, oval, dentate, of an obscure green; nerves very salient; bud large, oval, with greenish scales at the base, and white at the summit; flowers three inches in diameter, double, of a cherry-red, No. 3, on blooming, and more clear afterwards; petals recurved, equally imbricated, a few in the centre, small, curled, marked with white and intermixed with stamens, which are unequal in height.—*Very handsome.*

87. C. *Florida.*—Leaves of a medium size, near, roundish-oval, recurved, finely dentated; bud large, scales blackish; flower three inches in diameter, full, regular, of a cherry-red, No. 2, petals handsomely imbricated, slightly crenated at the summit; those of the centre in the form of a cockle shell, often only half developed, which has occasioned the name of *bird's nest* to be sometimes given to this variety. (C. *Nidus ovis.*)—*Superb.*

88. C. *Fascicularis.*— Leaves pretty large, oval-elongate, deeply dentated, handsomely veined, of various sizes and of a deep green; flower small, regular, of a cherry-red, No. 2.; petals bifid, handsomely imbricated, arranged in three rows, and a little recurved; some of them marked with a white spot; stamens abortive or petaloid, united in a fascicle around the styles, which sometimes appear in that form.— *Pretty.*

89. C. *Flaccida.*— Leaves rather large, handsomely arranged, of a beautiful green, shrub gracefully formed; flower single, red, not remarkable.

90. C. *Fordii.* — Shrub vigorous; gracefully branched; leaves two and a quarter inches broad and three long, ovate-acuminate, near, shining, of a deep green; flower broad, very double, regular, clear cherry, No. 3, three inches in diameter; petals imbricated; large, crenated at the summit, and arranged near each other with admirable symmetry.— *Superb.*

91. C. *Fulgentissima.*— Leaves two inches broad and three long, horizontal, very acuminated, and of a delicate green; somewhat large, rounded; flower double, very large, three and a half inches in diameter, of a cherry-red, No. 3; exterior petals in three rows, broad; those of the middle long, narrow, near, slit into narrow strips, crowded, arranged in a curved line, striped with white and

intermixed with stamens; this flower resembles that of C. *Cliviana*. —*Superb.*

92. C. *Formosa.*— Leaves two inches broad and three and a half long, with very conspicuous nerves, ovate-lanceolate, acuminated, of a shining green; bud ovate-oblong, with greenish scales; flower very large, double, of a beautiful clear cherry-red, No. 1; form elegant.— *Superb.*

93. C. *Formosissima.*— Leaves two and a half inches wide and three long, ovate-oblong, some obtuse, others lanceolate, horizontal, thick, multinerved, of a dark green; bud obtuse, with greenish scales; flower full, three inches in diameter, of a clear rose-lake color at first, and afterward cherry-red, No. 3; petals of the circumference in three rows, broad, much crenated, reflexed upon the calyx; the others smaller, narrow, erect, numerous, irregularly arranged.— *Superb.*

94. C. *Fraseri.*—Leaves oval, a little acuminate, recurved, nerves prominent, deeply dentated, of a dull green; flower large, full, of a brilliant red.—*Magnificent.*

95. C. *Gigantea.*—Shrub vigorous, of a magnificent appearance; leaves large, three and a half wide and four and a half long, ovate, lanceolate, slightly acuminate, firm, thick, deeply dentated, of a dull green; bud oval, obtuse, as large as a pigeon's egg, before it blooms, scales green; flower four and a half inches in diameter, very double, of a pale red, sometimes rose, and opens with considerable difficulty; exterior petals very numerous, arranged in three rows; those of the centre short, less numerous, broad and imbricated in a rosette, whitish, intermingled with stamens.—*Superb.*

96. C. *Grandiflora simplex.*—Leaves of a medium size, ovate, lanceolate, form and color of those of the single red Camellia; bud roundish, scales green; flower single, red, large, bears seed. Mr Noisette has obtained from the seed a Camellia, very like this, but the flower is larger. There is also a *Grandiflora* with double flowers which is very handsome.

97. C. *Gloriosa.*—The branches of this shrub are slim and greyish; leaves of a medium size, oval, acute, reflex, flat, of a beautiful shining green; bud small, scales blackish; flower two and a half inches in diameter, double, regular, of a beautiful cherry color, No. 2; petals irregular, distorted, rumpled, spirally arranged around some abortive styles and stamens in the centre.— *Very beautiful.*

98. C. *Hollesia.*—Leaves large, oblong, much dentated, a little

elevated, of a beautiful green; bud small, elongate; flower pretty large, double, rose color, No. 2; the first row of the petals in the circumference, recurved, acuminated, imbricated distantly; those of the middle small, twisted, striped with white, a few abortive stamens.—*Handsome.*

99. C. *Husseyussoni.*—Leaves two and a half inches broad, and three and a half long, roundish oval, a little acuminated, multinerved, a little curled, reflexed, of a rather deep green; bud with green scales; flower large, semi-double, of a cherry-red, No. 1; petals of the circumference arranged in two rows and rather broad; those of the interior, long, narrow, erect, not numerous, intermixed with some stamens.—*Pretty.*

100. C. *Hosackia.*—A shrub which resembles in its port, the C. *Rubra plena,* of which it is an hybrid, and more elegant; the leaves are broad and of a little deeper green; bud oblong, large, obtuse, always green; flower more than four inches in diameter, very double, of a splendid scarlet color; it blooms with regularity.—*Very beautiful.*

101. C. *Hibbertia.*—Leaves very large, thick, firm or stiff, very glossy, flat, and of an obscure green, some of them are curled and almost all are recurved upon their branches; bud oblong, scales yellowish, its development very late; flower of medium size, semi-double, of a cherry-red, No. 1; petals large, mixed with many stamens.—*Passable.*

102. C. *Herbertii.*—Foliage beautiful, and port very vigorous; bud elongate, scales greenish; flower rather large, semi-double, of a cherry-red, No. 2; petals broad, numerous and crowded; some stamens in the centre.—*Passable.*

103. C. *Heterophylla.*—A robust shrub, bushy, slim, leaves elongate, recurved, of medium size, deformed, irregularly dentated; bud long, pointed, scales greenish; flower small, semi-double, cherry-red, No. 3; petals of the circumference in two rows, cordiform; those of the interior small, elongated, curved inwards and outwards, sometimes spotted with white; many fertile stamens in the centre. —*Passable.*

104. C. *Humboldtiana.*—Leaves oval, acuminated, very like those of C. Emperor of Austria; bud of medium size, scales green; flower large, double, of a cherry-red, No. 2; which changes immediately to a delicate rose; blooms abundantly and for a long time.—*Very beautiful.*

105. C. *Hybrida Colorata.*—Port rather graceful; wood of the branches blackish, leaves two inches wide and two inches eight lines long, oval, a little rolled up, point reversed, nerves salient; those of the middle, especially, very distinct; bud large, scales green; flower of medium size, of a cherry-red, No. 2; often spotted with white, semi-double, petals erect, rounded, mixed with stamens.—*Passable.*

106. C. *Imbricata.*—Leaves two inches wide and four long, ovate, leaves lanceolate, curled, undulating, finely dentated, and of a dull green; bud. spherical, rather large, scales greenish; flower large, perfectly round, of a cherry-red, No. 2; shaded with carmine-lake; petals from 70 to 75, regularly imbricated, oval, broad, terminating in a point at the summit; those of the centre a little striped, or marked with white; is a long time in bloom.—*Magnificent.*

107. C. *Insignis alba.*—Leaves oval, a little lanceolate, one inch and ten lines wide, and four long; smooth, reclined, rolled up on the sides, and of a yellowish green; flower large, three and a half inches in diameter, single, of a cherry-red, No. 3; six petals in the circumference, sometimes spotted with white; petaloid stamens, whitish, slightly striped, with a pale red.—*Passable.*

108. C. *Insignis de Tat.*—Leaves two inches wide and three inches and four lines long, oblong, very acuminate, close, almost flat; finely and regularly dentated, of an obscure green; flower semi-double, two and a half inches in diameter; of a cherry-red, No. 4; petals imbricated, those of the centre small, and mixed with stamens.—*Charming.*

109. C. *Insignis rubra.*—Leaves large, three inches wide, and four long, roundish-oval, slightly acuminated, reflex; bud large, depressed, scales blackish; flower large, four inches and more in diameter, single, of a brilliant carmine red; seven rounded petals; many abortive stamens, or half transformed petals striped with white in the centre; pistils much larger than the stamens. The last flowers of this variety do not resemble the first.—*Very beautiful.*

110. C. *Iddebiana.*—Leaves very nearly resembling those of C. *Rubra simplex;* flower vase-form, large, double, regularly formed, of a deep orange-red, No. 7; petals, not numerous, broad, elevated, intermixed with short stamens.—*Superb.*

111. C. *Knightii eximia.*—Leaves small, close, oval, very acuminate, reflex at the extremity; much veined and of a dull green; bud

at first elongate, pointed, oblong and obtuse, some days before its development; flower semi-double, two and a half inches in diameter, at first rose, No. 4; and at a later period cherry-red, No. 2. exterior petals, imbricated, a little marked with white; those of the centre smaller, rumpled, intermixed with stamens.—*Passable.*

112. C. *Latifolia nova.*—Leaves three inches wide, and about the same in length, and in a manner imbricated, rounded at the base, point recurved, glossy, and much nerved; flower vase-form, three inches in diameter, of a cherry-red, No. 3; interior petals irregular, festooned and curled; those of the exterior often with two or three roundish lobes.—*Superb.*

113. C. *Lambertii.*—Leaves very much like those of C. *Rubra plena;* flowers large, semi-double, and often single, cherry-red, No. 3.—*Passable.*

114. C. *Macrophylla.*—There are offered for sale, by the nurserymen, several varieties of Camellia, under this name; the oldest has a single flower, and of but little merit; the second has very beautiful foliage, and a small semi-double insignificant flower; the third resembles, much, C. Humboldtiana; the fourth and last, and which I consider the true, has leaves, four inches wide and five and a half long, roundish-oval, nerves very salient, and of a beautiful green; flower very well formed, of a cherry-red, No. 1; petals rounded, broad, those of the centre rumpled, distorted, and spirally arranged; some very short stamens in the middle; corolla three and a half inches in diameter.—*Superb.*

115. C. *Miss Rosa.*—A very vigorous shrub; leaves horizontal, oval, almost round, two inches and four lines wide, and four inches long, acuminate, very much dentated, thick, strong nerves; petiole longer than in the other varieties: buds numerous, pointed, like those of C. *Variegata plena;* flower two and a half inches in diameter, semi-double, of a cherry red, No. 1; exterior petals, to the number of from eight to ten, very broad; those of the centre small, depressed, and arranged in spirals; blooms full and easily.—*Very beautiful.*

116. C. *Magniflora simplex.*—Leaves very nearly like those of the single red Camellia; port pyramidal, vigorous and elegant; flower five inches in diameter; single, of a cherry-red, No. 2; many stamens in the centre. Mr Tamporet obtained it from the seed.—*Very beautiful.*

117. C. *Mutabilis Traversii.*— A vigorous shrub; leaves large,

of a beautiful green, a little curled, resembling those of C. *Rubra plena*, nerves very conspicuous; flower regular, double, very large, three and a half inches in diameter, at first, on expanding, of a delicate rose tint, immediately it becomes deeper, and shaded with violet; petals from 60 to 70, the exterior side of which is margined with white, and most of them are traversed by a whitish line, which regularly extends from the extremity to the claw.— *Superb.*

118. C. *Nannetensis.*— Leaves rather large, obtuse-oval, reflex, a little acuminated, veined, of a faded green; flower double, handsomely imbricated, two and a half inches in diameter, cherry-red, No. 1., sometimes darker; petals not numerous, arranged in a vase form, nearly all equal.— *Very pretty.*

119. C. *New-imported.*— Leaves very nearly like those of C. *Rawsiana*; bud rounded, scales blackish; flower of medium size, double, well formed, of a cherry-red, No. 2.— *Very beautiful.*

120. C. *Osburnea.*— Leaves one inch and three lines wide and three inches six lines long, oblong, glossy, flat, a little acuminated, recurved towards the stock, and in an imbricated manner, very finely dentated; bud pointed-oval; scales calycinal, greenish; flower large, of a cherry-red, No. 1, like that of C. *Coniophyllæflora*, that is, composed of eight petals in the circumference, many single or petaloid stamens, short, united in a compact fascicles, striped with pale red, and forming a depressed bowl-formed corolla.— *Pretty.*

121. C. *Oxoniensis.*— A very vigorous shrub; branches large and shooting out far, leaves roundish-oval, very acuminate, regularly dentate; bud large, oval, scales greenish, sometimes black at the summit; flower large, double, four inches in diameter, of an intense rose, very difficult to describe; exterior petals arranged around and toward the centre, recurved, narrowed towards the claws, very broad in the limb, regularly placed in a vase-form; those of the centre small, straight, irregularly marked with rose and white, which gives a peculiar character of beauty to this flower. The sexual organs are apparent, some of the stamens petaloid.—*Superb.*

122. C. *Ornata.*— Leaves medium, horizontal, of a handsome green; bud large, scales almost black; flower large, broad, double, of a cherry-red, mixed with a delicate violet, No. 3, well formed, having some resemblance to that of C. *Rosa sinensis.*— *Beautiful.*

123. C. *Percyæ.*— Leaves large, roundish-oval, stiff, of a blackish green; bud oblong, scales greenish; flower large, single, cherry-red, No. 1, stamens numerous, dispersed, and very regularly re-

curved, instead of being straight and confined in fascicles, as in the C. *Aitonia;* this disposition of the stamens gives it the form of the interior of the blossom of a *Passiflora.*— *Curious.*

124. C. *Peucillata.*— Leaves two inches wide and four long, ovate-lanceolate, very dentate, almost flat, of a beautiful green; bud rather large, scales green; flower two and a half inches in diameter, semi-double, of a cherry-red, No. 3; petals of the circumference reflexed upon the calyx, the others elevated as in the C. *Rex Bataviæ.* A few stamens in the centre.— *Pretty.*

125. C. *Parthoniana.* See C. *Dorsetti.*

126. *Preston-eclipse* — The leaves have a faint resemblance to those of C. *Imperialis*, as have also the buds; flower three inches and three lines in diameter, sometimes of a clear rose, No. 1, striped with white, like the C. Punctata plena; now and then of a pure cherry-red, No. 4, as in the Camellia Pæoniæflora; exterior petals, not numerous, large, recurved; those of the interior narrow, erect, slashed, striped, spiral. and form a depressed sphere.—*Superb.*

127. C. *Paradoxa.*— Leaves two inches wide and three and a half long, roundish-oval, nerves conspicuous; flower large, single, regular, of a clear cherry-red, No. 5; petals slightly undulate, crenated at the summit; filaments of the stamens united for half their length.— *Passable.*

128. C. *Pulchella.*— Leaves small, of a pale green; bud with blackish scales; flower small, semi-double, of a cherry-red, No. 1; petals straight.— *Passable.*

129. C. *Pæoniæflora rubra.*.— A vigorous shrub, has a tendency to grow tall, and requires to be pruned to give it a handsome form; leaves two inches wide, and two and eleven lines long, a little dentated, oval, acuminated, shining, of rather a deep green; bud large, rounded, scales green; flower four and a half inches in diameter, and sometimes larger, of a vivid rose, No. 4, often of a cherry red, No, 2, full; petals flat in the circumference; in the centre large, and in form of a cornet, numerous, narrow, close, forming an elevated centre.— *Superb.*

130. C. *Parcksii striped.*— Leaves small, an inch and a half wide and two long, reflex, recurved at the summit, nerves apparent, but small, of an obscure green, surface uneven; bud with green scales; flower large, double, of a cherry-red, No. 2, at first, and afterwards rose; petals of the circumference broad, finely cre-

nated at the summit; some stamens in the centre; this flower resembles, a little, that of C. *Rosa sinensis*.— *Handsome.*

131. C. *Palmerii rubra.* — Leaves of a medium size, of the kind of those of C. Lucida; flower rather small, double, of a cherry-red, No. 3.— *Passable.*

132. C. *Plumonia.*— Leaves two inches wide and three and half long, roundish-oval, a little mucronate, thick, regularly dentated at the summit, and irregularly at the base, of a sombre green; bud elongate, scales green; of a medium size; flower of a medium size, single, cherry-red, No. 2; petals to the number of from five to seven, broad, stamens single, mixed with others half transformed into petals.—*Rather insignificant.*

133. C. *Reine des Pays-Bas.*—Leaves near, shining like those of C. *Rubra simplex;* bud with calycinal scales, greenish; flower three inches in diameter, double, clear cherry-red, No. 2; petals of the circumference recurved and rumpled; those of the centre erect and distorted.— *Passable.*

134. C. *Radiata.*— Leaves of a medium size, ovate-lanceolate, of a faded green, nearly nerveless; bud rounded, depressed, scales blackish at the base, and whitish at the summit; flower two inches and ten lines in diameter, full, regular, of a delicate cherry-red, No. 1; petals handsomely imbricated, forming a cup, as in C. *Florida.* — *Passable.*

135. C *Rosa sinensis.*— A shrub with greyish branches; leaves large, near, strongly nerved, oval, acuminate, regularly dentate, recurved towards the stalk, of a deep green; bud rather large, in form and color like those of the C. *Variegata plena;* flower three inches and three lines, and sometimes more, in diameter, full, regular, of a cherry-red, No. 2, sometimes rose; exterior petals recurved, and a little irregular in the limb; those of the centre narrower, and a little rumpled; some of them striped with white and clear rose. —*Superb.*

136. * C. *Reticulata.*— This Camellia came from China. It is considered by all botanists as a distinct species. It differs, in all respects, from C. Japonica, by its rounded, flat, and strongly reticulated leaves, as well as by its silken ovary, which is not to be found in the other species; bud very large, conical, two inches long before it opens; calyx pentaphyllous, of a yellowish green; leaves oblong, acuminate, reticulate, dentate, of a deep green; flower very large,

five inches in diameter, semi-double; petals, in number from twenty to twentythree, undulated and inserted in a loose and irregular manner, of a bright cherry-red, No. 2, shaded with rose; stamens numerous and irregularly placed, some erect and others curved; anthers broad, of a dull brownish yellow, which but illy comports with the splendor of the petals. This flower much resembles that of *Pœonia arborea rosea*, when this is only semi-double, which is often the case; of the same color and the same form.— *Magnificent.*

137. C. *Rubricaulis.*— A vigorous shrub, and of a handsome port; leaves two and a half inches wide and three and a half long, roundish-oval, near, thick, broad teeth and conspicuous nerves, of a deep green; bud ovate-oblong, scales yellowish; flower semi-double, two and a half inches in diameter, of a regular form, cherry-red, No. 3; petals rounded, broad, dispersed; corolla in the form of a vase; many stamens in the centre. It is known in the commerce of flowers, by the name of C. *Rubricaulis Variegata;* but this is the same as the common C. Rubricaulis, which has marbled flowers when it is forced to bloom early in a very warm green-house. This peculiarity of producing variegated flowers, has been remarked in several varieties of the red flowered Camellias, whenever they are submitted to an elevated temperature, to make them bloom before their natural epoch. The C. *Chandlerii, Spectabilis, Coccinea, Rex Bataviæ, Aflæ Rosa sinensis, Corollina, Belesiana, Wiltonia, Rubra plena*, and others, experience this change. The *Variegata plena* is more marbled, or variegated in winter, than in the spring.

138. C. *Rosa punctata.*— Leaves two inches wide and two and a half long, roundish-oval, acuminate, near, horizontal, regularly dentated, of rather a deep green; flower three inches in diameter, double, well formed, of a cherry-red, No. 2, with some white spots. — *Very handsome.*

139. C. *Rosæflora.*— Leaves two inches wide and three and two lines long, ovate lanceolate, acuminate, some of them rolled back, conspicuously nerved, and of a handsome green; bud rather large, oblong, elongate, scales green; flower regular, double, two and a half inches in diameter, cherry-red, No. 2; petals rather numerous, ovate-oblong, well imbricated, in a rose-form; a few stamens.— — *Handsome.*

140. C. *Scintillous.*— Leaves two inches wide and two and ten lines long, oval, a little acuminated; nerves apparent, of an ordi-

nary green; bud rather large, a little pointed, scales yellowish; flower three and a half inches in diameter, double, cherry-red, No. 1; petals shaded with red and rose, long, narrow, handsomely imbricated.— *Very handsome.*

141. C. *Senicia.*— There exist in commerce three different varieties under this name; the foliage of the first resembles that of C. *Floridа;* bud large, roundish, depressed, scales yellowish; flower large, full, of a cherry-red, No. 2, opening gradually in the form of a cup; petals of the circumference, arranged in several rows, broad, rounded, imbricated; those of the other rows are much smaller, but of the form of the preceeding, a little rumpled in the centre, sometimes striped with white, a little twisted, and contains two or three stamens.— *It is a superb variety.*

The second variety has leaves two inches wide and three long, ovate-lanceolate, very acuminate, of a faded green; flower large, of a cherry-red, No. 2, very double, well formed; petals well arranged, and imbricated regularly.— *Superb.*

The third variety has rather large leaves, inclined towards the earth, and of a pale green, the flower is composed of seven large petals in the circumference; the petals of the middle very nearly like those of C. *Anemonæflora.*—*Passable.*

142. C. *Superba.*— Leaves roundish-oval, two inches wide and two and a half long, dentated and a little undulated, thick, of a dull green; flower large, semi-double, in the form of a broad cup, of a beautiful cherry, No. 3; a few stamens are found intermixed with the small petals.— *Passable.*

143. *Staminea simplex,* or *Pinckolor.*— Leaves very large, three inches and three lines wide and four inches and three lines long, roundish-oval, stiff, thick, a little acuminated, strong nerves, of a pale green; bud very large, oblong, obtuse, scales yellowish, flowers four inches in diameter, single, of a cherry-red, No. 2, sometimes darker; stamens numerous; anthers large; filaments short.— *Very beautiful.*

144. C. *Sophiana* (*Poit.*)— Shrub vigorous; leaves oval, slightly acuminated, dentated rather deeply, of a handsome green; bud large, conical; flower cherry-red, No. 2, semi-full, three and a half inches in diameter; petals from 15 to 20, broad, well imbricated, reflex towards the summit, convex in the middle and concave at the base; petals of the centre disposed as in the corolla of a lily; the fila-

ments of the stamens are divided into five or six divergent fascicles. Obtained from the seed by Mr Mathieu, of Paris, and named by Mr Poiteau.— *Very handsome.*

145. *Thunbergia.*— Leaves one inch and eleven lines broad and three inches long, oval, a little acuminated, obscurely veined, slightly recurved interiorly, flat at the summit, and of a beautiful glossy green; bud oblong, scales greenish; flower two and a half inches in diameter, semi-double, cherry-red, No. 2, of the form of Camellia Florida, but less double; petals of the centre curled and distorted; pistils apparent.— *Superb.*

146. C. *Spatulatæ.*— Leaves rather large; buds with dark yellow scales; flower large, single, cherry-red, No. 3; petals elongate, bifid, spatulate, hollowed into gutters having the summit a little recurved; bears seed.— *Beautiful.*

147. C. *Triumphans.*— Leaves two and a half inches wide and three long, roundish-oval, slightly acuminated, nerves very distinct, a little undulated towards the middle, thick, very like those of the *Colvillii*; bud spherical, depressed at the summit, and as large as a small walnut, before it expands into blossom; scales calycinal, large, thick, rounded, of a yellowish color; flower three and a half inches in diameter, very full, regular, cherry-red, No. 1, gradually shaded with a pure rose, whose intenseness diminishes from the circumference to the centre; petals large, a little recurved at the exterior extremity, imbricated gracefully, slightly veined with red and rose; sometimes the petals of the centre, which are small, are striped with white.—*Magnificent.*

148. C. *Warrata striata.*— Leaves lanceolate, two inches wide and four long, acuminated, the borders turned up and forming a kind of spoon, of a glossy green; bud very large, oblong, scales clear green; flower broad, irregular, of a cherry-red, No. 1, often pale or dark, and spotted with white; petals six, broad, deeply crenated at the summit, folded back on the calyx, and separated from those of the centre, which are all composed of petaloid stamens, red, regular, forming a bowl.— *Very handsome.*

149. C. *Venustissama.* — Leaves roundish-oval, like those of C. Masterii, two inches and eight lines wide and three long; flower of the Anemone, large, semi-double, cherry-red, No. 2, sometimes striped with white lines.—*Charming.*

150. C. *Woodtiana.*— Leaves two inches wide and three long,

lanceolate, acuminate, regularly and finely dentated; bud small, scales green: flower medium, double, of a cherry-red, No. 2.—*Passable.*

151. C. *Woodsii.*—Leaves twenty lines wide and three inches and ten lines long; lanceolate, acuminated, a little dentated, of a deep green; handsome port; bud very large, oblong, scales blackish; flower very large, three inches in diameter, petals unequal.

This flower resembles a Provence rose; blooms with difficulty.—*Superb.*

FIRST GAMUT.

UNICOLORS.

DEEP CHERRY-RED.

Dominant color.—Carmine mixed with more or less Vermilion, as in Nos. 4, 5, 6 and 7 of the colored table.

152. Camellia *Alexandriana.*—Leaves two inches and eight lines wide and three and a half long, ovate, oblong, lanceolate, canaliculate; reflex, teeth very distant, of a deep green; flower large, three inches in diameter, double, deep cherry-red, No. 6; a little of a violet tint, form like that of C. *Altheæflora.*—*Very beautiful.*

153. C. *Altheæflora.*—Leaves two inches six lines wide and four inches three lines long, near, reflex, lanceolate, of a clear and glassy green; bud obtuse, large, with reddish calycinal scales; flower broad, depressed, double, three and a half inches in diameter, cherry-red, No. 6; petals of the circumference in two rows, large, recurved, separated from those of the centre, which are broad, short, erect, irregularly veined, notched or slit at the summit and intermixed with stamens, which are not very apparent.—*Superb.*

154. C. *Atroviolacea.*—Flower large, regular, well formed, clear red, and afterwards deep; petals of the exterior rounded and acuminated; those of the centre narrower, elongate, distorted and acute.—*Passable.*

155. C. *Anemora mutabillis.*—Leaves two inches and three lines wide and three inches and two lines long, flat, ovate, lanceolate, nerves not very apparent, of a deep green; bud rather large, oblong, scales greenish; flower three and a half inches in diameter, full, of a deep red, No. 6; inclining to purple, darker than

C. Corollina; petals in eight rows, handsomely imbricated, the exteriors broad, the others diminish in width in proportion as they approximate to the centre, all crenated at the summit, some of them verging towards white.—*Magnificent.*

156. C. *Anemona Warrata rosea.*—Leaves four inches long and three wide, oval, elliptical, acute, imperfectly nerved, glossy and coriaceous, point short; flower more than three inches in diameter, spherical, of a cherry-red, No. 4; shaded with a purplish-rose; exterior petals large, an inch broad, not very near, entire, a little sinuous.—*Superb.*

157. C. *Blackburniana.*—Leaves two inches wide and four long, oblong, lanceolate, dispersed, dentated, resembling those of C. Dorsetti of a brownish green; bud elongate, pointed, with greenish scales, flower large, three inches in diameter, full; color, deep cherry-red, No 6; petals of the exterior large, recurved, detached from those of the centre, which are short, near, compact, forming an elevated heart.—*Superb.*

158. C. *Braxilliensis.*—Leaf handsome; shrub branched; port pyramidal, and very vigorous; bud with blackish scales; flower semi-double, red, small.—*Insignificant.*

159. C. *Berlesiana fulgens.*—A shrub with tortuous and greyish branches; leaves near, numerous, of ordinary size, oval, a little acuminated, nerves not very apparent, scarcely dentated, and somewhat like those of C. Coccinea; bud large, elongate, scales green; opens gradually and gracefully; flower three inches and two lines in diameter, double, rose color, No. 4; petals rounded, elevated, disposed in the form of a vase, not numerous, intermixed with stamens, which are not very apparent.—*Very handsome.*

160. C. *Concinna.*—Leaves an inch and a half wide and two and a half long, thick, roundish-oval, the summit very acute, nerves very salient, but little dentated and of a deep green; bud pretty large, pyramidal, scales greenish; flower more than three inches in diameter, full, hollowed in the centre like a funnel, cherry-red, No. 4; petals gracefully imbricated, from the centre to the circumference, reflex, and form a perfect rose.—*Magnificent.*

161. C. *Coccinea.*—Shrub pyramidal, wood greyish; leaves of medium size, near, roundish-oval, a little acuminate, smooth, irregularly dentated; bud somewhat large, oval, acute, scales greenish; flower axillary, large, regular, double, of a deep cherry-red, No. 4;

petals of the circumference, imbricated, sometimes splashed with white; those of the centre small, rumpled, and irregularly arranged. —*Very beautiful.*

162. C. *Aintonia.*—Floy. It is a sub-variety of C. Warrata, fecundated by C. Variegata, and obtained from the seed, by Mr Floy of New York. The flower of this Camellia has only a single row of large exterior petals, which are stiff, thick, very broad, of a deep cherry-red, No. 6; the centre of the flower is composed of narrow petals, striped red and white, among which are seen some stamens and rudiments of pistils like those of the *Warrata.*—*Very beautiful.*

163. C. *Corollina.*—Leaves from two to three inches wide and five long, lanceolate, acuminate, a little inclined towards the stock, sometimes considerably dentated for one half, and then almost entire towards the summit, of an obscure green; bud large, obtuse, scales yellowish; flower three and a half inches in diameter, and often more, double, deep cherry-red, No. 6; petals large, broad, not numerous, sometimes spotted with white; some stamens in the centre. The seeds of this Camellia have produced very beautiful sub-varieties.—*Superb.*

164. C. *Dilecta.*—Leaves small, of different forms, very little dentated; bud small, scales blackish; flower small, semi-double, of a very beautiful deep cherry-red, No. 6; a few petaloid stamens in the centre.—*Passable.*

165. C. *Dernii*, or *Augustæ.*—Leaves elongate, horizontal, profoundly dentate; bud oval, pointed; scales yellowish; flower full, three inches in diameter, of a handsome form, deep cherry-red, No. 4; vivid crimson; exterior petals in two rows, broad, flattened, gracefully twisted, reflex, and crenate; those of the middle, form a flattened bowl, are numerous and united in irregular groups. —*Very beautiful.*

166. C. *Egertonia.*—Leaves oblong, acuminate, eighteen lines wide and three and a half inches long, obscurely veined, the point inclined toward the earth, flat, of a deep shining green; bud elongate, scales blackish on their borders, green in the middle and whitish at the summit; flower two inches and nine lines in diameter, full, deep cherry-red, No. 5; petals of the exterior disposed in three rows, broad, recurved, much crenated at the summit; those of the centre, smaller, unequal, separated from the first; slit into

narrow portions, the first slit at the top, contorted, short and compact, forming an open centre; enveloped by a few more regular petals.—*Very beautiful.*

167. C. *Elphinstonia.*—Leaves two inches four lines wide and three inches eight lines long, roundish-oval, a little dentated; bud large, scales of a blackish green; flower large, cherry-red, No. 5; almost poppy colored, shaded with carmine, sometimes splashed with white, three inches in diameter, heart arched; exterior petals pretty large, well arranged in a cup and notched at the summit; those of the centre, small, numerous, rolled like a cornet, grouped and united, presenting a regular and pleasing sphere.—*Very beautiful.*

168. C. *Flammea.*—Leaves narrow, elongate; flower small, deep cherry-red, No. 5; petals a little pointed.—*Insignificant.*

169. C. *Fulgida.*—Leaves two inches and one line wide and three inches three lines long, roundish-oval, a little acuminate, reflex, nerves profound, of a very deep green; bud large, a little elongated, scales green; flower three and a half inches in diameter, single, deep cherry No. 6; petals 6, broad, slightly curled, resembling those of C. *Spatulata.*

170. C. *Fulgens.*—Leaves and port of the single C. *Elegans;* flower cherry-red, No. 4; single; stamens as in C. *Aitonia;* bears seed. There is a variety which bears the same name, the flower of which is double, large and very beautiful.

171. C. *Gloria belgica.*—Leaves handsome, shining, finely dentated; flower large, single, cherry-red, No. 4; like that of C. *Papaveracea.*

172. C. *Heugmaniana.*—Leaves somewhat large, smooth, two inches and two lines wide, and three inches one line long, oblong, very acuminate, strongly nerved, very dentate, reflex, undulated, of a dull green; bud of a medium size, obtuse, scales green; flower three inches in diameter, double, cherry-red, No. 4; spherical, well formed; petals imbricated, regularly elevated, pretty large; those of the centre small, a little distorted, a few stamens.— *Very handsome.*

173. C. *Hexangularis Monstruosa.*—Leaves of a medium size, roundish-oval, slightly acuminate, obscurely dentate, of an ordinary green: flower three inches in diameter, well formed, double, of a cherry-red, No. 4.—*Superb.*

There exists an old *Hexangularis*, whose leaf is small, as well as

the flower, which is of a delicate rose color, with numerous petals, visibly divided into several angular undulations and curved inward. —*Passable.*

174. C. *Insignis purpurea.*—Leaves large, ovate, lanceolate, reflex, of a blackish green; bud elongate, large, scales blackish; flower large, very deep cherry-red, No. 7; single, with a few abortive stamens, or transformed into rudimental petals in the centre.

175. C. *Johnsonii.*—Shrub vigorous, but not much branched; leaves broad, of a deep green and often spotted with yellow dots; bud large, thick, scales greenish; flower semi-double, large, of a dark cherry-red, No. 4; crimsoned more or less deeply; some of the exterior petals broad and others pointed, not numerous; those of the middle, lanceolate, smaller than the first, formed into spirals and intermixed with fertile stamens.—*Very handsome.*

176. C. *Knightii.*—A shrub of an elegant port; leaves roundish-oval, finely dentated, very glossy, almost flat, and of a clear green; bud large, spherical, scales calycinal, blackish; flower large, single, of a handsome cherry-red, No. 4; petals broad, seven in number; many stamens arranged in fascicles, some of which are in a rudimental petaloid state; bears seed.—*Passable.*

177. C. *Kermesina.*—Leaves two inches and three lines wide and three and a half long, roundish-oval, strongly-nerved, of a very deep green; bud elongate, scales green; flower three inches in diameter; cherry-red, No. 5; double, petals round, erect, spatulate, like those of C. *Rubricaulis;* a few stamens in the centre.—*Very handsome.*

178. C. *Lindbria.*—Leaves of a medium size, ovate, lanceolate, very acuminate, recurved at the summit, of a green similar to that of C. single red; bud elongated, scales greenish; flower semi-double, deep cherry-red, No. 4; like that of C. *Camptoniana.* There is another variety of this name, the flower of which is large, double, of a delicate rose, resembling much that of C. *Sinensis rosea.*—*Superb.*

179. C. *Lucida.*—Leaves two inches wide, and three long, ovate, oblong, a little acuminated, shining, flat, horizontal, the old have the summit acute, the others obtuse, slightly dentated, and of an obscure green: bud of a medium size, scales blackish; flower double, rather large, regular, of a deep orange red, approaching carmine, No. 5; some of the centre petals deformed.—*Very beautiful.*

180. C. *Madame Adelaide.* (Berl.)—Shrub pyramidal; leaves resembling those of C. double white, a little more acute, and more dentated at the extremity, of a deep green; bud very large, like that of C. *Aitonia;* flower very large, spherical, double, of a beautiful cherry-red, No. 5; petals rounded, beautifully imbricated, some of those in the centre slightly distorted; those of the circumference arranged horizontally, and those of the centre erect.—*Superb.*

181. C. *Milleri.*—Leaves two inches and two lines wide, and four and often more long, oblong, scarcely veined, flat, very finely dentated, of a clear green, as in C. *Speciosa vera;* bud very large, obtuse, scales greenish; flower large, four inches and eight lines in diameter, full, cherry-red, No. 4; exterior petals broad, not numerous, recurved, sometimes curled, doubly crenate at the summit: those of the interior of different sizes, some large, others small and slit into narrow strips like the *Speciosa vera.*—*Magnificent.*

182. C. *Minuta.*—Shrub vigorous; leaves three inches long, almost orbicular, a little attenuated at the base and summit, very glossy and veined; flower two inches and eight lines in diameter, of a deep cherry-red, No. 4; arranged into a perfect vase, regular, petals imbricated, emarginate in the middle, slightly cordiform; those of the centre, very irregular, of a uniform vivid red.—*Superb.*

183. C. *Myrtifolia* or *involuta.*—Leaves smaller than in the other varieties, one inch and a half wide and two long, oval, slightly lanceolate, of a dull green; bud of a medium size, egg-shaped, acute, of a yellowish green; flower large, full, well formed, of a handsome red; exterior petals deep amaranth, and those approaching the centre, a pale rose color; petals broad, beautifully imbricated, numerous. The flowers of this variety emit an agreeable odor when they are struck by the solar rays.—*Magnificent.*

184. C. *Myrtifolia grandiflora.*—A shrub of rather a slow growth and not very tall, branches of a greyish green, slim and diverging; leaves two inches long, a little contorted into the form of a boat, and deeply dentated; of a deep and glossy green; flower very double, four inches in diameter, of a cherry-red, No. 5; spotted and striped with carmine; petals very ample, rounded, borders of a pale rose; corolla regular, and approaches very nearly the the form of the hundred-leaf rose; like the latter it is a little open and forms a cup in the centre; blooms very late.—*Superb.*

185. C. *Mastererii.*—Leaves rounded and acuminate, of a very dark green; bud elongate and has reddish calycinal scales; flower three and a half inches in diameter, full, well formed, of a deep cherry-red, No. 5, or deep crimson; petals of the circumference oblong, cordiform, convex and recurved; those of the centre smaller, cut into strap-shaped portions at the summit, not numerous and sometimes marked with white.—*Very beautiful.*

186. C. *Papaveracea.*—Leaves of ordinary size, oval, contracted at the summit, nerves salient, of a pale green, often shaded with yellow; flower single, five inches in diameter, cherry-red, No. 4; petals from 5 to 7, broad, well placed; many short stamens, compact, style very long; bears seed.—*Superb.*

[To be Continued.]

ART. II.— *The Cultivation of Truffles, or Instruction for artificially raising and making large Plantations of Black and White Truffles, in Woods, Shrubberies, and Gardens.* By ALEXANDER VON BOROHOLZ.

(Concluded from page 274.)

IF, therefore, truffles are to be transported from one situation to another, and to be promoted to be the ancestors of their species, the greatest precautions must be taken, lest they die on the journey, and become useless. This is the greatest difficulty to be encountered in the planting of truffles, and thus the plantation may easily fail.—If truffles naturally grow in the vicinity of the new plantation, the experiment may be repeated without much expense; but, when truffles have to be sent a considerable distance, it is very unpleasant to lose both time and money. Truffles, at their full growth, must not be chosen for transplanting: at that time their vital powers are too feeble; they are then too near dying to cause the production of this species in their new situation. They are as little able to bear the violent removal from their ancient situation, and transplantation into a new one, as an old tree (for instance, a fir or an oak) that has arrived at its full growth. Most of the early attempts to remove truffles from one situation to another must have failed, because large, and consequently old worn-out truffles were chosen for the purpose; and it was expected that they should survive this treatment, contrary

to their nature, and combined with their transplantation. Already, during their journey, or even after being planted, they fell a prey to death ; and their bodies, soon becoming putrid, were unable to operate efficaciously upon the vicinity assigned them.

Equally injurious is the planting of tender truffle germs, or very small truffles. They also cannot be taken from their parental earth, and abandoned to their new situation, without being exposed to the same hazard of dying as a young hound which is taken from its mother's breast and left to itself, even with heaps of meat and drink about it. How could it be even possible that the tender truffle germ should operate so powerfully upon the new soil, where truffles had never grown, as to collect about the tender plant the matter necessary for the support of the fungus, and to change it to its nutriment?

Let, therefore, truffles of a middle size, and in the full possession of their vital powers, be chosen for transplanting. There is no great difficulty in finding truffles in a place in a wood where many grow. Truffles are generally found in groups; so that many, of all ages are found near to fully grown ones. If the dog has found the place where such as are fully grown exist (for he can discover none but by the smell which is diffused around them, and the young ones have no smell,) we only need carefully search the ground near to find more truffles, both young and fully grown ones. In the general search, the young unripe ones are mostly left unnoticed, but so torn from their situation, that they must soon die.

Nevertheless, these half-grown truffles often greatly resemble the other before-mentioned truffles, that are not edible; and an experienced eye is necessary to distinguish them from such useless kinds as are frequently met with near them, especially as, in doubtful cases, the smell decides nothing ; for the edible truffle first receives, when it is become ripe, that smell which designates it, so as not to be mistaken. In order that no useless truffles may be brought into the plantation (viz. the swine truffles,) notwithstanding they would come quickly forward, let those be thrown away respecting which it is uncertain whether they are of the edible kind or not. If the place be known where half-grown truffles are, let them be taken up on a showery day, or at least a cloudy one, in such a manner as that they may remain completely enveloped in a ball of earth, and be as little as possible exposed to the access of the air. If the earth is very loose, so as not to hold firmly together; or if, through previous

drought, it had lost its natural viscidity, which it has not fully recovered again through the last rain; the place where the truffles are must have a great deal of water poured over it a few hours before they are taken up. The fungi will then be easily taken up, together with the earth about them, and put into a wooden case, which must be filled with moist wood earth, from the place of growth of the truffles, and closely fastened down. Truffles may thus be sent many miles, without any danger of their perishing. Only upon long journeys, which last several days or weeks, the case must often be opened, for an hour at a time, and the earth from time to time be moistened with fresh river-water, that the truffles may not become mouldy and putrid. This practice is necessary with respect to the white truffle, which has hitherto been considered to grow only in Upper Italy, but can, nevertheless, be transplanted, as well as the black sort.

When the truffles have reached their appointed destination, the case must be immediately opened in an airy but shady place, and the earth moistened, if necessary; after which, they must be planted as soon as possible in the situation intended for them. It is not advisable to distribute the truffles over the whole of the bed; it is better to plant them on a small part of it. As, upon a newly made bed, the matter in the earth has not taken the direction necessary to the production of this species of fungus, it is easily conceivable that a single truffle cannot act sufficiently to produce this direction, but that the united power of several is requisite. In the earlier attempts, it was, indeed, expected from a single fungus, or even from pieces cut off, that they should exert this power upon the new soil; but the expectation was continually frustrated. According to the nature of the soil, whether more or less moist, the truffles are set from 2 in. to 4 in., or, at the most, 6 in. deep. The soil in which they were enveloped in their journey is left upon them, and the utmost efforts are made to prevent their being exposed to the access of the air, or even to that of the sun's rays. On this account the planting of them must take place only in the evening, when the sun is gone down, or in very cloudy weather. Holes of the depth required must be made beforehand, the bottoms of which must be strewed with soil out of the case; then each truffle must be carefully lifted up, with the soil that is about it, planted, and the soil that still remains in the case be distributed in the holes. If the holes are not filled with this, they must be filled with the soil of their new situation,

which must be moistened with repeated sprinklings of water. The new plantation must then be amply covered with twigs cut from the oak or hornbeam; and the soil must be planted with young trees of these kinds, not crowded, but at such a distance as to give sufficient shade, so as to prevent the land from being dried up.

The best time for transplanting truffles is towards the middle of spring and in the beginning of autumn, about which latter season the greatest number of half-grown truffles is to be found. About this time, the land is usually moist enough of itself, so that it is not necessary to water it to prevent its being dried up. But, in case it should be dry from great drought, it must assuredly be moistened in this manner; in doing which, the water, nevertheless, must not be poured on in streams, as the germinating brood would thereby be easily choked, or entirely destroyed. It has already been observed that, in the succeeding autumn, the new plantation should be covered with a layer of oak leaves.

The plantation thus remains undisturbed till the next autumn, only that it is to be freed from large plants that shade it too much, and exhaust all the strength of the soil; but small fine grasses must be suffered to remain, as they give the ground beneficial shade, and prevent too great exhalation. In general, at least in the first years, let endeavors be made to imitate the wood soil as much as possible, in order to obtain the sooner a rich return of truffles.

In the first year, the truffles will be little increased. These fungi have, as yet, too little strength to act powerfully upon the environs, and to compel them to bring forth a large number of tubers. If the plantations have been made in the spring, there will be found in the next autumn some few young truffles, about the size of a nut, with a yellowish outer rind, and of a spongy consistence; an indication that they must remain a longer time to attain their ripeness, and along with it, their firm consistence and dark colour. In the mean time, these young truffles are the most certain indication that the plantation has succeeded, and that a well-furnished truffle bed will be obtained in the sequel. It is very advisable, in a large plantation, to renew the plantation in the succeeding year; and, for this reason, at the first planning, to divide the intended bed into two equal parts; and, in two consecutive years, to plant these fungi more towards the middle than towards the ends. If in one year the planting were to fail, the whole bed is not therefore quite uselessly prepared, but is

at least duly arranged on one side, by which means it will be easy to furnish the second half in the same way.

Hitherto, the question has been only respecting wood soils. As truffles are produced in this, so also they may be produced in artificial woods, and in English shrubberies. These have also commonly moist low situations, and oak trees also grow in them; but places free from trees, and the deep stratum of fruitful wood soil which has arisen from decayed leaves, are wanting in them. From the continual clearing of the plantations, the leaves that fall in autumn are removed, and cannot be converted into that fertile soil above mentioned. Here, therefore, we must have recourse to art.

In such English plantations, a somewhat moist place must be made choice of, in the vicinity, if possible, of a large oak, hornbeam, Spanish chesnut, or other deciduous tree with spreading boughs, which must be freed from the other trees and lofty shrubs. In such plantations, open grass-plots in the neighbourhood of a lofty tree are the best calculated for the purpose. The tree, however, must not be one whose large leaves prevent every ray of the sun and current of air from penetrating, and which form a connected roof, as the different kinds of maples, horse-chesnuts, planes, and other trees do. A tall tree with small leaves must be on the south side of the place destined for a plantation of truffles, to screen it from the burning rays of the southern sun. In a large plantation, a single tree is insufficient, and more are requisite towards the south side; which, however, must stand so far apart as scarce to touch each other with the extremities of their boughs. The natural soil which is found upon this place must be dug out the depth before mentioned, and carried away, as it has too little resemblance to that of ancient woods to be used in the mixture of new soil for the truffles. If good wood earth of oaks can be had in the vicinity, the filling of the pit is not at all different from that of lofty woods previously directed; but very often there are no woods in the neighbourhood, or, at least, no oak woods; and, in that case, soil produced from dung must be mixed with very rich vegetable mould. This is found under groups of trees that have stood a long time, upon places that have been long planted with poplars, willows, or fruit trees, or even upon hills; but not in wet and marshy meadows and pastures.

It often happens that this natural soil is too loose or too compact. In the first case, it contains too much sand, and must be mixed with

clay or loam; but a too compact soil has in its composition too little sand, and requires an addition of loam or meagre clay. If marl is to be met with in the neighbourhood, especially calcareous marl, it much improves the mixture; but, if there is none at all in the vicinity, its place must be supplied by calcareous stone or pieces of chalk reduced to powder. All these species of soil must, at the same time that the earth from dung is prepared, be brought together in a heap, to which must be added as much of the parts of plants, viz. the refuse of the vegetables used in the kitchen, leaves, sawdust of oak or other deciduous trees (but not of pines,) or wood earth, from falls of wood, as the different soils occupy in space. Such a heap of soil must be turned over every week, and moistened in dry weather; and, if not in the shade, must be protected by a high wall from being suddenly dried by the rays of the sun. It is advisable, every time that it is turned over, to cover it with young oak leaves, and to mix them well with it the next time it is turned over. For want of the leaves of this species of tree, those of other trees (for instance, hornbeams, beeches, elms, hazels, and others) may be taken. The heap having been assiduously and carefully wrought over, the earth, in the course of the summer will have become very rich in vegetable soil, and in the autumn may be applied to the making of the truffle bed. The mode of making it differs from that which has already been described for soil in lofty woods, in nothing except that, instead of the wood earth, which is there made use of, this artificial earth is taken.

If all the precepts which have been given have been observed in planting the truffles, the proprietor of artificial groups of trees may enjoy the pleasure of raising fresh tubers, as well as the proprietor of wood soil. It is advisable not to make the first plantation too large, in order at first to have merely a nursery from which truffles may be taken at any time. When this is once upon an estate, larger plantations may be made, which are not restricted to the pleasures of the table, but also increase the income.

Plantations of truffles in large gardens are combined with more circumstances and greater difficulties. Here is a want of wood soil, oaks, and hornbeams, which must be supplied or new-planted. It would be too tedious a process to plant an oak in a garden, and wait for its spreading so far as to afford the shade necessary to a plantation of truffles. An old pear tree, a high-trained apple tree, or sev-

eral plum and cherry trees, will answer the purpose. In the south of Germany, sweet chesnut and almond trees attain such a height and spread of boughs, as to supply the place of the oak, and are preferable to the before-mentioned fruit trees. Even in Italy, the delicate white truffle is reared under chesnut trees.

In most cases, oak leaves, or at least, the leaves of the hornbeam, are to be had in the neighbourhood, or, at least, at the distance of a few miles. If, however, they are not, which would certainly be a very extraordinary case, a small plantation of young oaks and hornbeams, that are not too weak, must be made a few years before, in a corner of the garden, that the necessary foliage may be obtained from them; or nurseries of both species of trees be raised from seed, that there may be a previous supply of young trees for planting the truffle bed. This, in most cases, will not be necessary, as the young trees may be obtained in the environs. The preparation of the soil for plantations of truffles in large gardens is, when a sufficiency of oak leaves can be had, not different from similar plantations in pleasure grounds, only the earth is more abundantly mixed with oak leaves. When all the previous preparations have been duly made, the truffles are to be planted in the same way that they are in the tall timber woods; and the new plantation may be somewhat thicker planted with young oaks and hornbeams, so as that they may be the most numerous, viz. in the proportion of two thirds or three fourths. This truffle bed must also, every autumn, be covered with a layer of oak leaves about a foot thick, that the earth may by degrees impart to the plantations a large quantity of the matter of the oak tree. For the same reason, it is very advantageous, if, instead of wood earth, pounded oak bark, or spent bark, that has already been used by the tanners, be made use of; nevertheless, the first is more efficacious, two thirds or three fourths of it having more efficacy than when the whole is of spent bark. But a heap of soil consisting of a mixture of the two kinds of bark requires a longer time than the usual wood earth for complete decomposition, and for becoming a useful earth. It is necessary, therefore, that it should be prepared, not in the spring, but in the autumn preceding, thereby to give it more time to moulder.

The truffle beds made in gardens require constant attention, lest they should be overshadowed and exhausted by high-growing plants. All such plants must therefore be early removed; but the kinds of

grass that do not grow too thick may be spared. The truffle plantation must occupy the lowest situation in the garden, that it may not suffer from drought; but, as soon as the ground becomes somewhat dry, it requires to be moistened by a moderate watering. Man, as in all plantations in gardens, fields, and woods, has to contend with many sorts of animals, which force their way into his possessions, and contend for the property which he has assumed. Truffles are also sought for and consumed by many animals; and they are the mose easily detected by these creatures, as they betray their place of growth by the smell which they diffuse around them.

In a lofty wood, inhabited by wild swine, it is not advisable to make a plantation of truffles: the swine would easily discover and destroy them, especially as they are fond of low situations. Red deer and roes, which scrape out and eat them, are less dangerous. Where, therefore, many red deer are in a forest, the new plantation must be secured from their attacks by a high hedge. This also keeps off the fox, which attacks them in the same manner; so also does the badger, though this animal is become too rare, in many parts of Germany, to do much damage; and, if one should be desirous of breaking into the truffle plantation, it would be discovered and become the welcome prey of the game-keeper. More dangerous than these are the squirrels, which are very dexterous in scraping up the tubers and eating them; all the squirrels which are found in the vicinity of the new truffle plantations, must be shot. Mice also seek truffles that are ripe, at which time they betray themselves by their smell. If the plantation be surrounded by a hedge, the mice may be poisoned, which in one that is not hedged about cannot be done, lest the game should be destroyed. Mice live in woods generally only in society; and, by a little attention, may, in separate places, be easily dug out, caught, and extirpated.

The security of truffles is combined with the greater difficulties in pleasure-grounds, which usually adjoin the open fields, from which they are visited by field mice. Here, catching and poisoning them is a security only when, at the same time, the whole of the environs can be freed from these voracious animals. Owls and crows are the greatest enemies of mice. If these birds, especially the first, can be habituated to dwell in the neighbourhood of truffle plantations (which, through complete protection, it is easy to effect,) mice will not be able to do any great mischief, at least not greater than in

every other garden and field plantation. Snails, both the red and the black wood snails, are only in wet weather injurious to plantations in which the truffles lie too shallow, or rise quite above the surface. Worms do much more damage, especially in such truffle plantations as are made in gardens or pleasure-grounds. The drawing here of worms from the environs cannot be avoided, as, from the cover of leaves, they lie warm in winter, and, from the quiet which the truffle beds enjoy, are not disturbed in summer. The larvæ of many species of beetle (viz. of the Melolontha Dermestes pinipérda, M. hortícola, M. solstitiàlis, A'pate capucìna,) the maggots of several flies, scolopendræ, millepedes, &c., penetrate the truffles in all directions, give them a bitter taste, and often are the cause of their death. That new plantations sometimes fail is not to be attributed either to a process that is defective, or to the impossibility of completing a good one. These worms may be the cause that all labour and expense were applied in vain. That plantations which are new are the most exposed to these enemies is easy to be explained. The earth is not yet sufficiently penetrated by the tannin of the oak, which is offensive to these kinds of insects, and drives them away. They are usually brought here by the dung-earth, especially when it contains parts that are not entirely converted into soil. For this reason, the frequent turning of the heap of earth is necessary. If, when this takes place, it be observed that many worms have established themselves in it, only let there be mixed in it some unslacked lime, or ashes that have not been lixivated, which will speedily kill these animals. For this purpose, the heap must be strewed with a thin layer of lime or ashes, and then well stirred.—The earth may also, some time before the making of the truffle plantation, be shot into a hot place, and be completely dried; by which means all the worms will be destroyed: but, in this case, before making the plantation, the earth must be sufficiently moistened; and, from the drying which it has undergone, it will be found to have lost a considerable part of its efficacy in manuring.

If, by accident or mistake, the first planting of truffles should not succeed, there is only by this a whole or half a year's time lost; but the bed itself has gained, since, by means of the decayed oak leaves, a richer matter has been imparted to the earth, so that the truffles removed to it in the succeeding autumn or spring will succeed better and produce greater numbers. It is advisable, before the repeated

planting of the fungi, to dig over the place destined for them and to manure it well with oak leaves. If there be time enough from the moment of the discovery of the failure of the plantation, to the time of replanting it, this manuring with oak leaves may be twice, or oftener, repeated. Too much matter from oak trees cannot be accumulated upon the plantation; since experience informs us that the taste of truffles growing wild in the woods is more delicate and aromatic in proportion as they have stood nearer to oak trees, and have grown in their shade. The same experience has been repeated in the case of artificial plantations of truffles. He who bestows much diligence and great care upon such plantations will secure to himself, in a few years, a rich harvest of well-tasted tubers, and may thank the author of this small treatise for having helped him to obtain them.

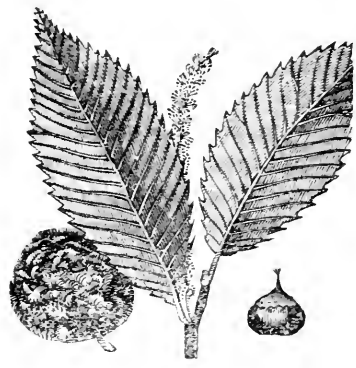
ART. III.—*Parley's Cyclopedia of Botany.* Boston: Weeks, Jordan & Co.

OF all the natural sciences, there is none combining at once so much of the useful and amusing as Botany. A very large share of our sustenance and the largest portion of our medicines are drawn from the vegetable world. This also furnishes support to the mere animal creation and affords almost all the materials for the arts. It therefore embraces in its wide compass directly or indirectly, the sources of almost every human art, and the means of satisfying almost every human want. Nor is it less fertile in sources of amusement. The infinite diversity of its species and the unrivalled beauty of many of them, the curious gradations from the lichen to the oak forming ten thousand different groups, making up one entire system —all this affords scope as well for practical examination as for philosophical analyses and generalization. It is therefore a subject of boundless resources and never dying interest. It is not only useful in a high degree, but it is one of those sciences which pay the student down day by day for every moment that he devotes to it. It is peculiarly appropriate to ladies, and above all to youth of both sexes. We therefore look with interest upon every promising effort that is made to bring the study of botany home to our families and our

schools. We commend the work before us, to all persons who are interested in the subject and particularly to parents and those who have charge of the great interests of education. Botany has hitherto been treated in such a manner as to repel the general reader, and youth particularly, from an attempt to discover its beautiful mysteries. The very gate placed at the entrance to the science seemed guarded by a manymouthed Cerberus of hard words. The book before us is calculated to remove this difficulty and lead the reader familiarly into the subject. It contains in the first place an introduction embracing the general principles of the science, which any person may read with satisfaction. It then exhibits the classification; but the most material and useful portion of the book is a dictionary of plants containing under an alphabetical arrangement both scientific and familiar descriptions of about two thousand of the most interesting plants, trees and shrubs. There is an index of common names, which enables the uninitiated enquirer to turn at once to any plant about which he seeks information. We copy a few of the descriptions, and by permission of the publishers exhibit some of the cuts with which the work is beautifully illustrated.

CASTANEA. 21—7.

C. VESCA, *Common Chesnut*: leaves oblong, lanceolate, acuminate,

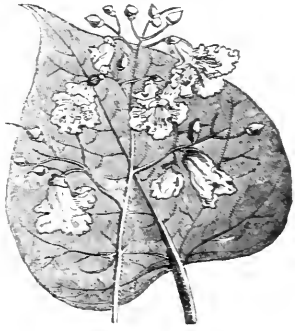


mucronate, serrate, glabrous on each side. With us, the chesnut is one of our finest trees, but they are quite eclipsed by some said to be found in the eastern continent, measuring from seventyfive to one hundred and sixty feet in circumference. One in France, thought to be more than a thousand years old, has been known as the *Great Chesnut* for six hundred years; its branches are still an-

nually laden with fruit, and the trunk is perfectly sound. In this country, it generally attains the height of fifty or sixty feet, the trunk quite large in proportion. Its leaves are six or seven inches long, an inch and a half in breadth, coarsely toothed, of a fine brilliant green color, of fine texture, with prominent parallel nerves beneath. The wood is coarse-grained, but strong, elastic, and light; it is very durable, and is much used for fences, which endure the alternate moisture and dryness of the weather many years. But what recommends this tree particularly to the young folks, is its fruit; almost every boy must have his winter stock of *chesnuts* and *shagbarks*, to enjoy with his friends during the long evenings.

CATALPA. 2—1.

C. SYRINGIFOLIA, *Common Catalpa:* leaves cordate, flat, smooth. In the Atlantic States, the catalpa begins to be found in the forests



on the banks of the river Savannah, and west of the Alleghanies, on those of the Cumberland, between the thirtyfifth and thirtysixth degrees of latitude. Farther south it is more common, and abounds near the borders of all the rivers which empty into the Mississippi, or which water West Florida. In the regions where it grows most abundantly it frequently exceeds fifty feet in height, with a diameter from eighteen to twentyfour inches. It is easily recognised by its bark, which is of a silver-gray color, and but slightly furrowed, by its ample leaves, and by its wide-spreading summit, disproportioned in size to the diameter of its trunk. It differs from other trees also by the fewness of its branches. The flowers, which are collected in large bunches at the extremity of the branches, are white, with violet and yellow spots, and are beautiful and showy. The capsules are cylindrical and pendent, of a brown color when ripe, three or four

lines in diameter and twelve or fifteen inches in length. The seeds are thin, flat, and developed in a long, narrow, membranous wing terminated by a hairy tuft. Each seed, with its wing, is about an inch long, and a line and a half broad.

That the catalpa is a tree of rapid growth is proved by the distance of the annual concentric circles. Its wood is of a grayish-white color, of a fine texture, very light, and very brilliant when polished. It resembles the butternut wood, with this exception, that the butternut wood is of a reddish hue, and is less durable when exposed to the weather. Posts of the catalpa perfectly seasoned have been proved to be very durable. In the spring, if a bit of the cellular integument of the catalpa bark is removed, a venomous and offensive odor is exhaled. In a thesis supported at the medical college of Philadelphia, this bark is maintained to be tonic, stimulant, and more powerfully antiseptic than the Peruvian bark. It is stated that the honey collected from the flowers of this tree is poisonous, and that its effects, though less alarming, are analogous to those of honey of the yellow jasmine. Its bark is considered to be a good antidote for the bite of snakes, the machineel poison, &c.

DIONÆA. 10—1.

D. MUSCIPULA, *Venus's Fly-trap:* the leaves of this most singular plant are each terminated by an appendage of two lobes, with a gland in a cavity at the bottom which secretes a fluid attractive to flies. The edges of the lobes are furnished with long spines or bristles; and at the bottom of the cavity are three sharp points projecting up-

wards Whether all this contrivance is intended as a snare, I cannot say, but whenever an unlucky insect alights on it, the lobes instantly close, catching him

"As cleverly as the ablest trap,"

and pressing him down upon the points, thus impale him alive.—From the middle of the leaves rises the flower-stalk, terminated by

an umbel-like corymb of small, white flowers. Grows in wet places in the southern states.

From these specimens the reader may easily understand the nature of the work. We particularly recommend it to those who are making collections of books for common school libraries. We know of no one work which might be made so useful in the seminaries throughout the country, if teachers could be made to take a little interest in the matter. Botany is peculiarly the appropriate study of the country, for country people have at once the best means of pursuing the science and the greatest need of increasing their means of innocent recreation. The vegetable kingdom invites them by a thousand allurements to explore its riches, and they, of all persons, ought not to be deaf to such an appeal.

Art. IV.—*Notices of Fine Plants.*

Liliaceæ.—*Yucca aloifolia.*—A fine specimen of the above, has been flowering in the collection of E. Hersy Derby, of Salem, during the past month. The plant was sunk in the border in front of the green-houses and formed a conspicuous and highly interesting object. Having some curiosity to ascertain its dimensions, we ascertained by admeasurements that they were as follows. Height of stem from apex of flower stalk to the ground, nine feet six inches. Circumference of old stem at the fairest girth, one foot. Length of flower stem, two feet and two inches. Circumference of raceme three feet and six inches. We should judge that something like one hundred and fifty or two hundred individual flowers, invested in a mass of beauty the peduncles of the inflorescence. It attracted, as it deserved, great attention and may be considered an ornament to any conservatory.

Lilium superbum. L.—Superb American Lily.—The propitious character of the season has thrown into vigorous bloom several plants of this elegant native flower in the little collection of the writer. Several years ago we remember seeing it in great perfection at the Botanic Garden, and since then only in impoverished specimens, which, curious of remark, were imported among other bulbs

from Holland. We think the species is to be procured in the western part of the State, the ornament of the month of July, and conspicuous amidst our wild flowers.

Rosacea.—*Rosa rubifolia.*—Bramble-leaved rose. This elegant climbing native and southern species, has appeared in great perfection at several places where its lateness of flower, easy culture, rapidity of growth, hardihood of character, simplicity of flower (being single) have recommended it to notice and cultivation. To cover a trellis or to serve as a screen, there cannot be its equal. The far famed *Greville* though a double variety, in our estimation, is greatly its inferior. On the mansion of T. Lee of Brookline, we were greatly in doubt, which the most to admire, the rambling bramble-leaved, or the delicately sprayed and pure white blossomed Erophylla. A double variety of rubifolia is said to be in culture at Cincinnati, whose flowers we have not seen, but whose merits are considered valuable and great.

Polemoniacæ.—*Phlox Drummondii.*—Patches of this new annual and charming plant, a great acquisition to the florists, were in successful culture, raised from seed by T. Lea, Esq., at whose residence we lately had the pleasure of seeing them. Our first acquaintance with this little floral gem was at the last year's annual Exhibition of the Massachusetts Horticultural Society, from the garden of Mr S. R. Johnson. This as has since been ascertained, was a variety of comparatively inferior merit. The seedlings of Mr Lee approach to the true character of the species as seen by a friend in England. The latter are of a rich and almost sparkling ruby crimson, while if we remember, the former were of a paler purple. Great credit is due to the early and successful introduction of both kinds into public notice, and to consequent universal favor. L.

Musci.—*Bryum argenteum.*—Silver Bryum.—Lovers of these tiny plants, the mosses, may find an exquisite species just making its fruit stems about this time, by noticing in some shady and neglected seed bed or garden walk, the varied forms of velvet verdure on their surface. It will be recognized by its minute white foliage of a shining and argentine appearance. J. L. R.

Art. V.—*Obituary Notice of th elate Thomas Andrew Knight, Esq., President of the London Horticultural Society.*

The public has sustained an irretrievable loss in the death of Thomas Andrew Knight, Esq., F. R. S., of Dowton Castle, in Herefordshire, the President of the Horticultural Society of London. A correspondent of the Athenæum, with the signature of J. L. (evidently Dr Lindley, who is understood to write the botanical and horticultural articles for that journal,) has sent the following biographical notice, written with just and excellent feeling, which we copy from the Athenæum of May 19, though, at this late period of the month, we have not time previously to ask the editor's permission for so doing :

"Mr Knight was born at Wormsley Grange, near Hereford, on the 10th of October, 1758. He was the youngest son of the Rev. Thomas Knight, a clergyman of the Church of England, whose father had amassed a large fortune as an iron-master, at the time when iron-works were first established at Colebrook Dale. When Mr Knight was three years old, he lost his father ; and his education was, in consequence, so much neglected, that at the age of nine years he was unable to write, and scarcely able to read. He was then sent to school at Ludlow, whence he was removed to Chiswick, and afterwards entered at Baliol College, Oxford. It was in the idle days of his childhood, when he could derive no assistance from books, that his active mind was first directed to the contemplation of the phenomena of vegetable life ; and he then acquired that fixed habit of thinking and judging for himself, which laid the foundation of his reputation as an original observer and experimentalist. He used to relate an anecdote of his childhood, which marks the strong original tendency of his mind to observation and reflection. Seeing the gardener one day planting beans in the ground, he asked him why he buried those bits of wood ; being told that they would grow into bean plants, and bear other beans, he watched the event, and, finding that it had happened as the gardener had foretold, he determined to plant his pocket-knife, in the expectation of its also growing and bearing other knives. When he saw that this did not take place, he set himself to consider the cause of the difference in the two cases, and thus was led to occupy his earliest thoughts with those attempts at tracing the vital phenomena of plants to their

causes, upon which he eventually constructed so brilliant a reputation.

It was about the year 1795 that Mr Knight began to be publicly known as a vegetable physiologist. In that year he laid before the Royal Society his celebrated paper upon the inheritance of disease among fruit trees, and the propagation of debility by grafting. This was succeeded by accounts of experimental researches into vegetable fecundation, the ascent and descent of sap in trees, the phenomena of germination, the influence of light upon leaves, and a great variety of similar subjects. In all these researches the originality of the experiments was very remarkable, and the care with which the results were given was so great, that the most captious of subsequent writers have admitted the accuracy of the facts produced by Mr Knight, however much they may have differed from him in the conclusions which they draw from them.

The great object which Mr Knight set before himself, and which he pursued through his long life with undeviating steadiness of purpose, was utility. Mere curious speculations seem to have engaged his attention but little; it was only when facts had some great practical bearing that he applied himself seriously to investigate the phenomena connected with them. For this reason, to improve the races of domesticated plants, to establish important points of cultivation upon sound physiological reasoning, to increase the amount of food which may be procured from a given space of land, (all of them subjects closely connected with the welfare of his country,) are more especially the topics of the numerous papers communicated by him to various societies, especially the horticultural, in the chair of which he succeeded his friend Sir Joseph Banks. Whoever calls to mind what gardens were only twenty years ago, and what they now are, must be sensible of the extraordinary improvement which has taken place in the art of horticulture during that period. This change is unquestionably traceable, in a more evident manner, to the practice and writings of Mr Knight than to all other causes combined. Alterations first suggested by himself, or by the principles which he explained in a popular manner, small at first, increasing by degrees, have insensibly led, in the art of gardening, to the most extensive improvements, the real origin of which has already, as always happens in such cases, been forgotten, except by those who are familiar with the career of Mr Knight, and who know that

it is to him that they are owing. Of domesticated fruits, or culinary vegetables, there is not a race that has not been ameliorated under his direction, or immediate and personal superintendence; and if, henceforward, the English yeoman can command the garden luxuries that were once confined to the great and wealthy, it is to Mr Knight, far more than to any other person, that the gratitude of the country is due.

The feelings thus evinced in the tendency of his scientific pursuits were extended to the offices of private life. Never was there a man possessed of greater kindness and benevolence, and whose loss has been more severely felt, not only by his immediate family, but by his numerous tenantry and dependants. And yet, notwithstanding the tenderness of his affection for those around him, when it pleased heaven to visit him, some years since, with the heaviest calamity that could befall a father, in the sudden death of an only and much beloved son, Mr Knight's philosophy was fully equal to sustain him in his trial.

Mr Knight's political opinions were as free from prejudices as his scientific views: his whole heart was with the liberal party, of which he was all his life a strenuous supporter.

It is no exaggeration to add that, great as is the loss sustained by his country and his friends, it will be equally difficult to fill his vacancy in science. No living man now before the world can be said to rank with him in that particular branch of science to which his life was devoted.

Mr Knight died in London, at the house of Mrs Walpole, one of his daughters, after a short illness, on the 11th of May, in the eightieth year of his age.—*London Athenæum, May* 19.

Art. VI.—*Miscellaneous Matters.*

Massachusetts Horticultural Society.—At a meeting of this Society on Saturday, July 21, it was voted,—that the society have an exhibition of Fruits and Flowers, in the month of September following, between the 10th and 25th of the same, at such time and place, within the above limitation as a committee hereafter to be chosen, shall, considering the progress of the season, deem most expedient. A general committee of arrangements was then chosen, viz:

Committee of Arrangements—Samuel Walker, Isaac P. Davis, Thomas Lee, Lemuel P. Grosvenor, Marshall P. Wilder, Ebenezer Putnam, E. Weston, Jr., Jacob Tidd, Benj V. French, Samuel Downer, David Haggerston, Wm. McLennan, Charles M. Hovey, M. P. Sawyer, Joseph Breck, Jona. Winship, J. E. Teschemacher, Cheever Newhall, Wm. Kenrick, Robert Treat Paine, Henry Sheaf, Samuel R. Johnson, S. Sweetser, Robert Manning, J. M. Ives, Dr J. C. Howard, P. B. Hovey, E. M. Richards, John A. Kenrick, Wm. E. Carter, J. L. L. F. Warren, J. W. Cowan, J. W. Russell.

On motion of Mr. Grosvenor this committee was ordered to fill vacancies, and add to its number if found desirable.

On motion of Mr Richards, a decorating committee was raised with authority to add to their number. The gentlemen of this committee are the following:

Special Committee to decorate the Hall and take charge of the Fruits and Flowers.—Samuel Walker, L. P. Grosvenor, Col. M. P. Wilder, J. E. Teschemacher, Wm. Kenrick, E. M. Richards, S. R. Johnson, C. M. Hovey, D. Haggerston, W. C. Cowan, J. W. Russell, H. Sheaf, Mr McLennan.

The Poor Man's or Cottager's Tree.—Such is the Apricot; and so it has been justly designated by the few patriarchs of gardening who now survive. Alas! how are these worthies passing away!

The apricot originally belonged to the plum genus; it has of late years been removed from that family, and ranks as the head of the genus Armeniaca, a word derived from Armenia, the supposed native country of the tree. It was received in England from the Levant, so we are told, in 1548. The advocates of the natural system force

this tree, with the apple, pear, plum, and many others, into their order Rosaceæ, from some fancied resemblance to the rose. There are natural affinities in abundance, doubtless, and we love to see them ably illustrated; but our heads ache at the multifarious anomalies which crowd upon and overwhelm the mind.

But, however, this rose of an apricot is the tree of trees to the poor man. Its habit is to bloom early, before the leaves expand; and therefore it is apt to lose its fruit when formally trained in a low horizontal direction; nevertheless, when it is favorably planted, as to soil and aspect, and can run up against a high and broad chimney where the foliage can soon be early called into action in support of the young germs of fruit, those germs, while in the bud of the blossom, being, as well as the stamens, preserved by the slight yet genial heat of the brick-work, the multitude of fruit produced is frequently prodigious. The writer's next door neighbor has two trees; one faces the west, and is trained very upright against the house-wall—it bears pretty well. The other is less, but faces the south, and has a kitchen-chimney, as it is supposed. Last week the man gathered twice, sixteen dozens and eighteen dozens—in all thirty-four dozen, and sold them for tarts: numbers remain on. A tall tree (on a single main stem,) in the west of England, which required a thirty-round ladder to reach its top, had one year above 600 ripe and ripening apricots upon it, when the party inspected it. Such being the case, the cottager is called upon to cultivate this grateful tree, and to give it the best situation and greatest attention that his means and time can afford.

One circumstance, an absolute fact, may gratify and surprise some readers. On the 27th of March, a tree, that remained for the major part little advanced, had one branch, not only completely in leaf (the foliage being of a bright verdure, and of full healthy vigor,) but covered with fruit, several of which appeared of the size of good nutmegs. The tree was planted to face the south-west, but it stands near the corner of the garden, where the wall takes a direction to the south by east. At the exact angle is the breast of a vinery-chimney, and its aspect is nearly due south. Against this breast was trained the solitary branch alluded to; and the effects described evince the operation of a warm protective wall upon the buds, even at a time when the roots remain in the ground exposed to frost.—*London Horticultural Journal.*

QUINCY MARKET.

[Reported for the Horticultural Register.]

APPLES, early,	barrel,	3 50
Dried,	pound,	5
BEANS, White,	bushel,	2 00
CRANBERRIES,	bushel,	2 50
CUCUMBERS,	dozen,	6¼
CURRANTS,	quart,	8
HORSE RADISH,	pound,	8
LEMONS,	box 2 25 dozen	20
LETTUCE,	head	6¼
ORANGES,	box 2 00 dozen	25
PEARS, summer St Michael,	quart	
PICKLED PEPPERS,	gallon	50
PARSLEY,	peck	25
POTATOES, early,	bushel,	75 a 1 00
PINE APPLES,	hundred	8 00
SPINACH,	peck	20
SQUASHES,	pound	2 a 3
TURNIPS,	bunch,	6
TOMATOES,	bushel	2 00
WALNUTS,	do	2 00
WHORTLEBERRIES,	do	2 00

Boston, August 6, 1838.

THE

HORTICULTURAL REGISTER,

AND

GARDENER'S MAGAZINE.

SEPTEMBER 1, 1838.

Art. I. — *Flemish Husbandry.*

The poor sandy heaths, which have been converted into productive farms, evince the indefatigable industry and perseverance of the Flemings. They seem to want nothing but a space to work upon; whatever be the quality or texture of the soil, in time they will make it produce something. The sand in the Campine can be compared to nothing but the sands on the sea shore, which they probably were originally. It is highly interesting to follow, step by step, the progress of improvement. Here you see a cottage and rude cow-shed erected on a spot of the most unpromising aspect. The loose white sand blown into irregular mounds is only kept together by the roots of the heath: a small spot only is levelled and surrounded by a ditch; part of this is covered with young broom, part is planted with potatoes, and perhaps a small patch of diminutive clover may show itself: but there is a heap of dung and compost forming. The urine of the cow is collected in a small tank, or perhaps in a cask sunk in the earth; and this is the nucleus from which, in a few years, a little farm will spread around.

In another spot more extensive improvements are going on; a wealthy proprietor or lessee is trenching and levelling the surface, sowing broom-seed, and planting young fire trees, which are to be cut down in a few years. In another, the process has gone on further, the firs or the broom are already cut down: a vein of loam has been found, and is dug out to be spread over the sandy surface: the cart with liquid manure is preparing the surface for the reception of

seed, or the same, diluted with water, is poured over the young blade just appearing above ground. The soil is created, and, if the cost and labor were reckoned, is paid for at a dear rate: but perseverance insures success, and there are few instances of improvements being abandoned, after they are fairly begun, unless they were undertaken on too large a scale; but then the land is soon divided into smaller portions, and improvements go on from different centres, and with more certainty.

We are here describing the labor of bringing a soil absolutely barren into a state of cultivation; but in most of the districts which have been originally waste and covered with heath, and which are now fertilized, a less ungrateful soil was found. Deep trenching and levelling at once presented a surface which required only to be manured to produce rye, flax, and potatoes. This is what we should call a moderately good sand, in which a small portion of clay and oxide of iron produces a certain degree of compactness, so as at least to retain moisture: under this kind of sand a stratum of loam is usually found at the depth of two or three feet, and, almost invariably between the sand and the loam, an indurated crust of earth cemented by carbonate of iron, which is well known to all improvers of poor sands by the name of the *iron pan;* this pan must be broken up and the loam under it mixed with the sandy surface, before any cultivation can succeed; and in this operation the Flemings are very dexterous. The instrument they use is a light wooden trenching spade, the end of the blade only being shod with iron: the handle of this spade is about two feet long, the blade from twelve to fifteen inches. A light pick-axe is used to break the pan where it appears. A ditch is dug with the trenching spade, two or three feet wide, and as deep as the trenching is intended, generally two feet, or at least twenty inches; this ditch is filled with the earth which is taken in long thin slices from the edge of the solid side of the ditch. Every slice is distributed carefully, so as to mix the whole, and keep the best soil at top, and likewise to fill up hollows and level eminences. If there is more than can conveniently be spread level, little heaps are made of the superfluous earth, which are afterwards carried, in an ingenious manner, to fill up more distant hollows, by means of horses and an instrument which is called a *mollebart.* Wherever there is a pan, it is carefully broken, and the loam, which is always found under it, is mixed with the sand

dug out. Draining is seldom required here, except that which is effected by making deep ditches to carry off the superfluous rain-water, which, in a country almost as level as a lake, is no great difficulty. A canal near at hand is, however, an essential condition of extensive improvement, to bring manure, and carry off the produce of the land, as well as to be an outlet for the water in the ditches. When Count Chaptal traversed a barren part of Flanders, accompanying the Emperor Napoleon, the latter expressed his surprise, at a meeting of the Council of the Department, that so great a tract of land remained uncultivated in so industrious a nation. The answer was, 'If your majesty will order a canal to be made through this district, we pledge ourselves that in five years it will be all converted into fertile fields.' The canal was ordered to be made without delay, and in less time than they promised not an unproductive spot remained.—(See Chaptal, 'Chimie Appliquee à l'Agriculture,' vol. i. p. 347.)—One great cause of the agricultural prosperity of Flanders is the ready transportation of manure and produce by canals.—But to return to the newly trenched land. If there is no manure at hand, the only thing that can be sown on poor sand, at first, is broom: this grows in the most barren soils; in three years it is fit to cut, and produces some return in fagots for the bakers and brickmakers. The leaves which have fallen have somewhat enriched the soil, and the fibres of the roots have given a certain degree of compactness. It may now be ploughed and sown with buckwheat, or even with rye without manure. By the time this is reaped some manure may have been collected, and a regular course of cropping may begin. As soon as clover and potatoes enable the farmer to keep cows and make manure, the improvement goes on rapidly; in a few years the soil undergoes a complete change: it becomes mellow and retentive of moisture, and enriched by the vegetable matter afforded by the decomposition of the roots of clover and other plants. It is surprising that so few sheep should be kept on these new farms. Sheep folded would do good by their tread, as well as their manure, but the management and feeding of sheep is a part of husbandry in which the Flemings, with very few exceptions, are decidedly as much behind our light land farmers, as they are before us in the feeding of their cows, and preparation and economy of manure.

If about twenty small cart-loads of dung can be brought on

each acre of the newly trenched ground, the progress is much more rapid. Potatoes are then the first crop, and generally give a good return. The same quantity of dung is required for the next crop, which is rye, in which clover is sown in the succeeding spring; and a small portion is sown with carrots, of which they have a white sort, which is very productive and large in good ground, and which, even in this poor soil, gives a tolerable supply of food to the cows in winter. Should the clover fail, which sometimes happens, the ground is ploughed in spring and sown with oats and clover again. But if the clover comes up well amongst the rye stubble, it is cut twice, after having been dressed with Dutch ashes early in spring. It is mostly consumed in the green state. The clover-ley is manured with ten cartloads of dung to the acre, and rye sown again, but not clover. After the rye comes buckwheat without any manure; then potatoes again, manured as at first, and the same rotation of crops follows. It is found that the poor land gradually improves at each rotation from the quantity of dung used: and, as this is essential, it will be easily seen that without water carriage the improvement could not go on: for the necessary quantity of dung could never be brought to the ground by land carriage through the deep sandy roads, which are mere tracks.

For want of sufficient manure, broom-seed is sometimes sown with the rye after the clover. The rye is heaped and the broom continues in the ground two years longer. It is then cut for fuel. The green tops are sometimes used for litter for the cows, and thus converted into manure. It is also occasionally ploughed in, when young and green, to enrich the land. Oats, clover, and broom are occasionally sown together. The oats are reaped the first year; the clover and young broom tops the next, and the broom cut in the third. This is a curious practice, and its advantage appears rather problematical. All these various methods of bringing poor sands into cultivation show that no device is omitted, which ingenuity can suggest, to supply the want of manure.

After the land has been gradually brought into a good state, and is cultivated in a regular manner, there appears much less difference between the soils which have been originally good, and those which have been made so by labor and industry. At least the crops in both appear more nearly alike at harvest, than is the case in soils of different qualities in other countries. This is a great proof of

the excellency of the Flemish system; for it shows that the land is in a constant state of improvement, and that the deficiency of the soil is compensated by greater attention to tillage and manuring; especially the latter. The maxim of the Flemish farmer is, that 'without manure there is no corn — without cattle there is no manure — and without green crops and roots cattle cannot be kept.' Every farmer calculates how much manure he requires for his land every year. If it can be bought at a reasonable rate, he never grudges the outlay. If it cannot be purchased, it must be made on the farm. A portion of land must be devoted to feed stock, which will make sufficient manure for the remainder: for he thinks it better to keep half the farm only in productive crops well manured, than double the amount of acres sown on badly prepared land. Hence also he does not reckon what the value would be of the food given to the cattle, if sold in the market, but how much labor it costs him to raise it, and what will be the increase of his crops from the manure collected. The land is never allowed to be idle, so long as the season will permit anything to grow. If it is not stirred by the plough and harrows to clear it of weeds, some useful crop or other is growing in it. Hence the practice of sowing different seeds amongst growing crops, such as clover and carrots amongst corn or flax; and those which grow rapidly between the reaping of one crop and the sowing of another, such as spurrey or turnips, immediately after the rye is cut, to be taken off before wheat sowing. These crops seem sometimes scarcely worth the labor of ploughing and sowing; but the ploughing is useful to the next crop, so that the seed and sowing are the only expense; and while a useful crop is growing, weeds are kept down. These are the general principles of Flemish husbandry.

The collection and application of manure is the great secret of Flemish husbandry. Upon their poor light soils nothing could be raised without an abundance of manure. It is consequently, an object of minute attention to the Flemish farmer to collect as much as possible, and to apply it in the most advantageous manner. For this purpose the dung of the different domestic animals is generally kept separate, especially that of cows, from that of horses; the former being thought better for dry sandy soils, the latter for colder loams and clays. They look upon pigs' dung as being cold and inferior, adopting in this respect the opinions of the ancients. We think

differently; but this may be easily accounted for. The Flemish store pigs are fed in the most miserable manner, and are merely kept alive on weeds taken from the fields, or by very scanty grazing in rough pastures. We need not be surprised, therefore, that their dung is poor. The cows are better fed, and their dung is consequently richer. Cow dung is thought to last longer in the soil, and its effects on the second crop are more conspicuous that that of horse dung, which stimulates more and is sooner effete. Sheep, which are so important to the light-land farmer in England and Scotland, for their manure, are not kept in sufficient quantities in Flanders, nor well enough fed to do much good to the land. They are commonly housed every night, and driven about in the day to gain a scanty subsistence along the roads and sides of fields. The manure collected in the sheep-fold is carried out on the land, and its effects are duly appreciated. A flock is occasionally folded on a clover ley before it is ploughed up, but never on turnips, which are always given to the cows. This is owing to the small extent of the farms, which do not allow of a considerable flock of sheep being kept by any one farmer; but a flock is made up of different lots of sheep belonging to several proprietors, and put under the care of a common shepherd, or it is sometimes the property of the shepherd, who occupies no land, but lets out the sheep to fold, or sell the manure.

But the great auxiliary of the Flemish farmer is the URINE TANK, wherein are collected not only the urine of cows and horses, but also the drainings of the dunghills. The urine tanks are generally sunk below the level of the ground, and have the sides built of brick, and the bottom paved: they are of various dimensions, according to the number of cows and horses on the farm. Attached to the distilleries, where many beast are constantly kept to consume the refuse wash, there are very large urine tanks of an oblong shape, divided by partitions into different chambers, so that the liquor may be of the proper age when it is used, which some farmers think ought to be six months. Each chamber is about eight feet square and six or eight feet deep; these are sometimes vaulted over, but frequently only covered with loose bords. As urine and the emptyings of privies are sold wholesale and retail, there are many large tanks near the rivers and canals, where the dealers have sometimes great quantities in store. Some of these consist of many

square pits like tan pits, bricked round, and the inside covered with a cement, which prevents loss by filtration. There is generally in a corner of each pit a graduated scale, by which the number of barrels, or tons of liquid in the tank may be ascertained by observing the height of the surface. These tanks are gradually filled by boatloads brought from the large towns; and when the season arrives for sowing, in spring and autumn, the farmers come with their carts and tubs, and purchase as much as they may want. The price varies from three to five francs (two shillings and sixpence to four shillings) per hogshead according to the quality. In a small farm of thirty to forty acres the tank is generally about twenty feet long, twelve wide, and six deep, with a partition in the middle, and arched over, leaving an opening for the pump, and another sufficient to allow a man to go in to empty out the earthy deposit which falls to the bottom. A trapdoor shuts over this aperture to prevent accidents. Sometimes the tank is round, like a well, with a domed top, and so deep in the ground, that it has a foot or two of earth over it. The situation of the tank is either in the farmyard near the entrance of the cowhouse, or immediately behind it; sometimes it is like a cellar under the building; but this is apt to cause a disagreeable smell in the cowhouse. We here describe those which we consider the most convenient: the form and capacity of the tanks vary according to the means and notions of the proprietors of the farms: but a tank of some kind or other is considered as indispensible an appendage to a farm as a barn or cowhouse. The farmer would as soon think of dispensing with his plough as with his tank: and no expense or trouble is spared to keep this well supplied. The numerous towns and villages in Flanders afford great help in the way of manure. The thrifty housewife and her active substitute the maid, know the value of what in our households is thrown away or wasted, and lost. A small tank, or a tub sunk in the ground in some corner contains all the liquid which can in any way be useful; soapsuds, washings of dishes, &c., are carefully kept in this reservoir, until once a week, the farmer or contractor calls with his tub on a cart, and this, mixed with the contents of privies, which are frequently emptied, he keeps in large cisterns for use or sale.

But this supply is not always adequate to the wants of the farmer, and then he has recourse to rape cakes dissolved in water, or in the tank, which is expensive, and can only be profitable where flax

bears a good price, this being the crop for which rape cakes are chiefly used as manure. Every means, therefore, of augmenting the supply of urine is had recourse to, and the most efficacious is the establishment of distilleries. These answer the double purpose of consuming produce and increasing manure by the number of beasts which are fattened on the refuse wash. It is calculated that every beast produces at the rate of ten or twelve tons of dung and twentysix hogsheads of urine in the year. A moderate distillery has fifty or sixty head of cattle constantly stalled. Here then is a supply of manure for several hundred acres of land every year. Formerly there were a great many distilleries in Flanders, but the duty on spirits and the interference of the government has much reduced their number; so that the farmers complain of the loss of this manure, and the consequent deficiency of their crops.

The dung of pigeons and domestic fowls, where it can be collected in any quantity, is highly valued. The mode of using it is either in a dry and powdered state, to which it is reduced by thrashing with a flail, when it is sown with the seeds of leguminous plants, or else dissolved in the urine tank, and thus spread over the land. This manure is chiefly reserved for kitchen gardens; it promotes the growth of vegetables and produces no weeds.

The solid dung, from which the liquid has been allowed to run off into the tank, must be carefully attended to, that it may not be too dry and become *foxy*, as it is called, or burn. It is therefore, mixed up with earth and any useless vegetable matter which can be collected into a heap or compost; and when it appears too dry some of the liquid from the tank is poured over it, to excite fermentation and accelerate decomposition, or it is merely watered, when there is sufficient strength in it to produce heat.

In order to increase as much as possible the quantity of solid manure, there is in most farms a place for the general reception of every kind of vegetable matter which can be collected; this is a shallow excavation, of a square or oblong form, of which the bottom has a gentle slope towards one end. It is generally lined on three sides with a wall of brick to keep the earth from falling in, and this wall sometimes rises a foot or more above the level of the ground. In this pit are collected parings of grass sods from the sides of roads and ditches, weeds taken out of the fields or canals, and every kind of refuse from the gardens: all this is occasionally

moistened with the washings of the stables, or any other rich liquid; a small portion of dung and urine are added, if necessary, and when it has been accumulating for some time, it is taken out; a portion of lime is added, and the whole is well mixed together; thus it forms the beginning of a heap, which rises gradually, and in due time gives a very good supply of rich vegetable mould, or compost well adapted to every purpose to which manure is applied. The place where this accumulation is made is called in French a *croupissoir*, and in Flemish or Dutch *smoor hoop*, which may be translated *smothering heap*.

Besides the manure which is collected on the farm, the *vidanges*, or emptyings of privies obtained from the towns, and the sweepings of streets, a large quantity of peat ashes imported from Holland are used, principally as a dressing for clover. These are the ashes of the common fuel in use in Holland, and are sold in Flanders by the bushel, as the Newbury ashes are in Berkshire.

Wood ashes, after the greater part of the alkali has been extracted for bleaching, are still considered as of great use to the land. Soapers' ashes are in great request for cold heavy soils; and sugar scum from the refiners, if it could be procured in sufficient quantity would be an excellent manure for every kind of soil. Where it can be obtained, they usually throw it into the urine tank; and the mixture is then considered as almost equal to the vidanges, which are looked upon as the *ne plus ultra* of manures. Soot is used as a top-dressing for wheat, or clover in spring, as it is with us. It is thought to destroy insects and hasten vegetation.

The weeds, which grow abundantly in all ponds, canals and ditches in this level country, where the current is never rapid, are mown in spring, and used in the green state as manure for potatoes. They are laid in the furrows, and the sets placed over them; the furrow is then filled up by the plough, and the weeds decomposing very rapidly, greatly assist the growth of the potato plants: so rapidly do these weeds ferment, that much of their value is dissipated, if they are left only forty-eight hours in heaps before they are put into the earth.

The manner in which manure is applied to the land for different crops will be explained as these are separately treated of: but the general principle, which pervades the whole system of manuring, is worthy of attention. Two great objects are always kept

in view. The first is to obtain the most abundant crop of whatever is sown: the next is to impregnate the soil with an increasing power of production, if possible, or at least to maintain that which has been obtained. In consequence of this, almost every crop has a certain portion of manure applied to it, which varies according to the nature of the crop to be raised, and that which has preceded: experience having taught that some crops exhaust the soils more than others.

But it is not the mere surface that they desire to manure. They well know that the deeper the soil is fertilized, the greater will be the profit and the less the labor. They are not satisfied with enriching the land to receive the seed, they furnish food for the growing plant in different stages of its growth, if they think it necessary. There is in consequence no fluctuation in the growth, no check at a time when the plants require support. The seed is made to vegetate rapidly by being in contact with the rich jnices of the manure; and hence a much smaller proportion of seed is required. The young blade is invigorated by a judicious watering, and is soon out of danger of the attacks of insects.—*Library of Useful Knowledge, Farmer's Series.*

Art. II.—*Professor Johnson's Lectures on Botany.*

After recapitulating some of the topics of the preceding lectures upon the development of vegetation, the learned professor commenced with remarks upon the grasses. These grow in all parts of the world promiscuously, and without cultivation, and being the principal nutriment of man, their cultivation follows him in society and his migrations. The Mogul and Caucasian races of men subsist upon wheat and barley; while rice and millet form the food of the Negro and Malay, and the tribes of ancient Mexico were bounded by the cultivation of maize. The cultivation of the earth preceded the improvement of the intellect, and was the herald of civilization. It is remarkable that we have no direct criterion of the origin of many of those grasses met with everywhere in cultivation, as none of them are to any extent found wild. Some travellers have thought that barley was indigenous to Tartary, rye to Creta, and wheat to Asia; but these

might have been diffused from some cultivated some years previously. Corn is not only the support of man, but the grasses are the subsistence of the animals which form his nutriment. The nutritive quality of grasses, is principally owing to the sugar which they contain, and of which some English grasses contain large quantities, but the sugar cane is the only grass that is exclusively cultivated for obtaining this article for commerce. The grasses are applied to a vast variety of important mechanical purposes; they are found in every part of the world, from the Poles to the Equator; on the land, as well as floating on the water, and are the universal food of animals. It has been estimated that the daily consumption of corn in England and Ireland is 1,238,096 bushels of wheat and barley; besides annually, 100,000 bags of rice, and 450,000,000 lbs. of sugar. Besides these may be estimated as the immediate products of the grasses, which consumed by animals form the food of man, a quantity of almost inconceivable amount. In London alone, is annually consumed 155,000,000 lbs. of butcher's meat. Of cheese, another production of grass, 11,500 tons are annually introduced into London, from Cheshire, about 20,000 tons from Warwickshire, besides that from several other countries. Of butter, the annual consumption is almost 50,000,000 lbs. the produce of 300,000 cows; and in London, between 9 and 10,000 cows are kept for the supply of milk to the inhabitants, which produce an annual supply of about 30,000 millions of quarts. All these are the immediate products of the grasses.

Most culinary vegetables belong to the cruciform, umbellate, or papilionaceous varieties of plants. — The first is so named from four petals forming the flower, being disposed in the form of a cross, as in the wallflower. It may be remarked, that not a single species included in this group is poisonous, but that the whole, if not absolutely employed as food, are not deleterious. The cabbage, cauliflower, brocoli, sea kale, turnip, mustard, and almost all culinary vegetables, but spinach, belong to it. Another extensive group, is the umbellifera, so called from the arrangement in umbels, the main flower stalk diverging into a number of spokes like an umbrella. Although this class contains many used as condiment or food, many others which are very poisonous, are associated with them, as the hemlock. We know too little of the natural affinities of plants, to enable us to distinguish the poisonous, from those that are not so;

as the sweet chervil of the garden, which is often mistaken for hemlock, or the common celery, mistaken for the same. Accidents from this kind are not uncommon, and it was from eating drop-wort that grows upon the banks of the Thames and other rivers, instead of celery, that several convicts died at Woolwich, three or four years ago. The papilionaceous, include many used for food, as pulse, beans, peas, tares, saintfoin, and others, and so named from the fancied resemblance of the flower to a butterfly. The fruit forms a pod, called a legume, and the plants are therefore called leguminous; of many of them, the seeds are food for man, and the stem and leaves of some, are food for cattle; but the seeds of the alburnum, and many others are poisonous. Although we are not yet sufficiently acquainted with the characters which may enable us to distinguish the qualities of all, yet, De Candolle has furnished us with a sign by which we may in some measure distinguish betwixt those which are poisonous or not. It is by observing how the leaves spring from the seed, which are found to be very dissimilar. Some throw their lobes above the ground, and are of a green color, as in the laburnum. In most of this kind of plants cultivated for the purposes of food, the leaves remain beneath the soil; but although this cannot be taken as an absolute criterion of a wholesome plant, from the circumstance that some of them throw up their leaves, it is a well recognized fact that no poisonous plant keeps its leaves beneath the surface. The potato is a member of a poisonous and narcotic order, being included in the same as the hemlock, nightshade, and mandrake. The potato being wholesome, seems to mark another feature, that some parts alone are poisonous whilst others are not, and that this poisonous principle may reside in different parts of the plant. In the poppy, the seeds are not poisonous, but on the contrary, highly nutritious; in some parts of the continent being a food both for man and animals. It is used extensively for the adulteration of oil; a large portion of the olive oil imported from France being almost exclusively composed of it. The fleshy part of the plum and other fruits is good for food, and nutritious, whilst the kernels and leaves are highly poisonous, containing hydrocyanic acid. The tubers of potatoes when roasted, are good, but the stem, leaves, and other parts of the plant are deleterious. The tubers, when on the ground and exposed to the surface of light, become green, and taste badly. In its history the potato presents the same

hemisphere as various kinds of corn. It was not known in the Eastern hemisphere, or the Old World, until after the discovery of America, where it was found cultivated in Peru, from whence it was introduced by Sir Walter Raleigh into Virginia, in 1586. It is supposed to be indigenous to the Andes and Peru, but it is not found there in a wild state by travellers. In many parts of Asia Minor, the soil is covered with the citron, cherry, pear, and other varieties of fruits. Although we are ignorant of their native spot, they may have formerly been introduced into these parts and cultivated, and point out ancient civilization. Many ages ago, science and civilization were confined to certain parts; and from countries in proximity to the Euxine Sea, the gulph of Persia, and other parts, was Europe indebted for its supply of almost all descriptions of fruit and vegetables. In the time of Cato, the Romans were neither acquainted with peaches or mulberries; in that of first Tarquin, the olive was not known to exist in Italy, Spain, or Africa; in that of Appius Claudius, olive oil was rare; but now all the neighboring countries derive their supply from these parts. In the time of Pliny, it was introduced into France and Spain. The vine, all the varieties of which originally sprung from one species, modified by climate and cultivation, is interesting in its genealogy. It was not known originally in Europe, but followed man in his migrations. It is found wild in the Caspian, though we have no reason to suppose it originally to have been so. — From Greece it was introduced to Sicily; by the Phoceans it was carried into the south of France; by the Romans to the banks of the Rhine; from whence it was extended to the various islands of the Mediterranean. Several of the fruits so important in the tropical regions, as the banana, the date, cocoa-nut, &c. have the history of their origin involved in the same obscurity as the European plants just named.

The solid matter of which vegetable substances are principally supplied from the earth, is carbon or charcoal, which principally comes through water. In plants growing in the arid sands of tropical regions, which are scarcely susceptible of supporting vegetation, we find very little carbonaceous matters, a small proportion of the solid principle being combined with a large quantity of aqueous juices. There are certain other principles which must be furnished from the soil; and if it be destitute of these, the plant cannot be fostered, and hence the difficulty of cultivation, from not knowing

the chemical nature of the earth and soil. Plants growing in the neighborhood of the ocean, contain soda, which had its origin in the spray of the sea to which they are exposed; the common eryngo will grow in such situations, but not in a garden, from the want of sea salt. It has, however, been kept alive under such circumstances, by watering with water in which sea salt had been dissolved. The matter of flint, or silica, is contained in considerable quantities in many plants, as in the common cane; if two pieces be rubbed together they will produce a light from this circumstance. When we examine the cuticle, we find a considerable quantity of minute, flinty matter, which produces the light. Mechanics are in the habit of using a vegetable production called Dutch rush, but which is not common in this country; it is used by cabinet makers and workers of brass, for polishing, where it acts like a fine file, caused by an innumerable number of pieces of rock crystal. Two causes may be assigned for the presence of this: — it is either imbibed by the plant in a fluid state, or produced by a certain specific, vital action in the plant. As we do not know any instance of the latter, the former may be assigned as the probable cause. Such plants will not grow without silica, and in situations where plants do not flourish, it is owing to the circumstance, that the soil does not contain its proper quantity of proper earth.

Lime is a well known substance, existing in vegetables in various proportions; in some being contained in a considerable quantity. It is always in combination with an acid, either the carbonic or the phosphoric, analagous to chalk or animal bone. One probable cause of the fertility of lime, when applied as manure to soil, is in the carbonic acid which it absorbs from the atmosphere, presenting it in a form by which it is readily decomposed. The soils which contain lime are most favorable for the growth of corn; and wheat never flourishes more than where it abounds. It is contained in grain in such quantities, that it is computed that every person who consumes 1 lb. of bread daily, will, in the course of one year take into his system 3 lbs. 6 ozs. 3 drachms and 44 grains of phosphate of lime. This circumstance is the reason why it is of superior quality over other grain, as it forms the principal part of human bodies. It is found in milk, where nature seems to indicate that it is contained for the nourishment of the young animal, from the remarkable fact that when they are able to take other food, the milk loses its propor-

tion of this substance. Although phosphate of lime is contained in considerable quantities in the adult secretions, it is not known in those of the young, being all taken up for the purpose of nutriment. The shells of eggs are formed of this substance, and Dr Paris has ascertained the singular fact, that if the legs of a hen be broken, she will lay her eggs without shells until these are repaired, for which the lime is required. Hens will also lay their eggs without shells if there is a deficiency of lime in the yard in which they roam. It is a remarkable circumstance, that although the grain contains the phosphate, the straw contains the carbonate of lime. Carbon is, next to water, the principal support of vegetation. In the formation of soil, the earthy and crustaceous lichens are planted first: these die and form a bed for the seed of the mosses. In the fertilization of land, different operations are going on; the roots of the eryngo run five or six feet from the stem, they then die and form the vegetable matter or black mould which covers the barren rocks that cover the globe. Nature herself realizes the fable of the phœnix. Man, the lord of the earth, is subject to the same laws as all other created beings; furnishing after death food for others, as myriads have done before; and we trample on others alike in beauty and decay.—*British Farmer's Magazine.*

Art. III.—*On the Culture of Tulips.*

From the Horticultural Journal for June.

Information is generally valued in proportion to the happy choice of time at which it is given. No person cares much for medical hints when in robust health; but let only a little finger ache, and at once the physician's aid is welcome. We were ruminating on the necessity of writing an article suited to the present bright and balmy period of the year, at which nature delights us by her freshness and her beauty, when, happening to turn our eyes on our precious bed of tulips, we were struck with the notion that nothing could be more *apropos* than to give some information on the cultivation of this beautiful plant. An objection immediately occurred to us, which certainly had some weight, and that was, that the subject had been often treated before and that the best modes of proceeding in this country were pretty generally known. We determined then to

choose this moment for giving our readers an account of the French mode of cultivation; and as the tulip season is now in its prime, we conceive that the hints we lay before them will not be uninteresting or valueless. The most successful tulip-cultivator of Paris is M. Tripet, the florist of the Boulevart des Capucines. For seventysix years his father and himself have been distinguished for the extreme beauty of their collections, and for the general success of their modes of proceeding. Any information on tulip-rearing emanating from them is entitled to great attention; and we think we shall be rendering our horticulturists a service and a pleasure in laying before them M. Tripet's plans of cultivation. After having said a few words on the natural history of the plants, we shall proceed to consecrate a certain space to the specific character of the French florist's mode of cultivation.

The tulip appears to have been altogether unknown to the ancients, or at least, if mention is made of it, it is under names and characters not clearly descriptive of its appearance or qualities. Nothing is found in Pliny which can seem to refer to it; and if Gesner has supposed that it is the *Satyrion Erythronium* of the Greeks, or the *Anemone Limonia* of Theophrastus—if Bauhin has believed that he recognized it in the *Pythonia* of this last author—they have founded their conjectures on such vague grounds, that it is astonishing they had the hardihood to express their opinions with so much firmness. It was only in the sixteenth century that this superb plant began to attract the attention of the botanist. It had been cultivated before this in Europe, and was known under the name of Tulipan, on account of the resemblance it bore in shape to the head-dress of the Dalmatians. Conrad Gesner was the first who described this plant, and gave a figure of it to the public, both of which may be seen in the works of *Valerius Cordus*, which appeared in 1560. Whatever difference of opinion may have existed in the opinion of authors, as to the spot where the tulip first was grown—whether it comes from the confines of China, as some declare, where it was known by the name of *Lale;* or from India, whence, according to others, it was brought to Holland by the Portuguese—all agree that it owes its origin to Asia, and that it was for ages neglected and without name. The most probable supposition is, that it came to us from the provinces of Asia, next neighbor to Europe; in fact it was from Constantinople that Gesner brought over, in 1559, that

species which to this day bears his name. At a later period, in 1575, Jacques de l'Ecluse, a learned botanist, received from Viena, from Angierus Busbecque, the Ambassador in Turkey, some seeds of Tulips, which he carried into Belgium, and from which he obtained, six years after, flowers in great variety. The first which were cultivated in France came from Tournay, and the plant was soon spread over Europe,; indeed, when once known, how could it fail to excite enthusiasm? It became, from the moment of its advent, a source of rivality amongst flower-fanciers. The great question was, who could multiply the greatest number of varieties, and who should possess the finest flowers. In the seventeenth century the passion for tulips became, amongst the Belgian and Dutch florists, an absolute madness. An imaginary and excessive value was set on this plant, and it shortly became a regular object of commerce, and immense sums of money, or articles of great value, were often given in exchange for a single plant. Many thousand francs * have been often given for a single root, and the amount of this article of commerce, in 1637, rose to some millions of francs. Each day the tulip-mania became more overpowering, so much so that the Etats Generaux of Holland, convinced of the evil effects which might result from it, were obliged to interfere, and to pass laws of great severity against such transactions. At the period of this effervescence, properties of considerable value were given for a single flower, and a memorable monument of this outrageous folly is still exhibited at Lille in the *Tulip Brewery*, which it is said, though valued at 30,000 francs (1,200*l.*) was given by its proprietor for a single root. In the present day, there is no nation which pushes farther than the Turks their love for this beautiful plant. With this voluptuous people it has become, not only an object of gratification and luxury, but of religious worship. No festival at Constantinople is more sumptuous than the fete of tulips. It is at the period when their blowing is in all its beauty, that the Odalesques celebrate the fete in the seraglios with all the magnificence which the Orientals display on festive occasions. Disposed on stands placed in gardens, illuminated with thousands of torches, they are considered as almost worthy of adoration, and are, undoubtedly, the brightest ornament of the festival given in their honor.

In France, if the tulips do not obtain the extraordinary favor

* A thousand francs is about 20*l.*

which they enjoy in Holland and Belgium, they still can boast of numerous admirers, amongst whom may be found names of almost European notoriety. Each year the amateurs of this plant are becoming more numerous, and without meriting exactly the title of being tulip-mad, they may be justly praised for paying a legitimate attention to the cultivation of one of the greatest ornaments of the garden.

The tulip of the florists (*Tulipa Gesneriana*) is said to grow naturally in the mountains of Savoy, in the Morea, and in the neighborhood of Nice. It furnishes several varieties, of which the two principal are—first, bizarres—and second, tulips on a white ground. The first are remarkable for their exhibiting a yellow tinge, mingled with the other colors, to the exclusion of white. They were much esteemed about forty or fifty years ago, but they are looked on with a less favourable eye at present. Many persons, however cultivate them carefully still, to form a contrast, by their dark and strange shades of color, with the tulips on a white ground. The last named variety, on the contrary, displays not the slightest trace of yellow. Sometimes, indeed, at the moment of blowing, a few exhibit a pale shade of yellow, but the rays of the sun soon render them of a pure white. These are again sub-divided into two classes; the first, into tulips on a white ground, streaked with red, pink, crimson, &c.; and, secondly, tulips on a white ground, streaked with violet, amaranth, purple, lilac, &c. The tulips, commonly called Dutch, are the only ones now admitted into a choice collection, and of these there are between 600 and 800 good varieties.

In order to be admitted into this privileged class, certain conditions have been laid down by lovers of the flower, which the tulip should fulfil, and to fail in even a single regulation is sufficient to cause it to be rejected without hesitation or pity. These conditions are, first, regularity of form; secondly, harmony of proportions between the several parts; thirdly, firmness of the stalks and petals; and, fourthly, on each of these a union of at least three colors clearly defined.

With respect to the first condition, it is indispensable that, from the point of junction, the petals should bend themselves gracefully about a third part of their height, and then describe a straight line to the top, so as to form a sort of cup with a circular opening. The summit of the petals must not be in the slightest degree obtuse or jagged at the edge.

Referring to the second condition, the width of the flower ought to be about three-quarters of its height. The nicest harmony of proportions ought to reign, not only in the different parts of the corolla, but also between this latter and the stem. The bulk of this ought to be co-ordinate, both with its own height, and with the color of the corolla. Thus a flower, with breadth equal to its height, a long stem supporting a diminutive flower, or a fine corolla inserted into a weak, bending, or ridiculously short stem, are blemishes which the severe taste of good judges proscribe as fatal.

As to the third law, we may remark that strength and straightness of stem are indispensable. Here the petals must be well furnished, for they then resist more easily the power of the solar rays.

To satisfy the fourth condition, it is necessary that at least three colors should appear, harmoniously combined, so that the eye may love to rest on the union. They must be well defined, bright, and formed into regular designs—they must continue perfect up to the time of the flower going off, without running into each other from the effects of rain, or becoming weak and dried from the rays of the sun.

Tulips are obtained in two different manners—by seed and offsets. Experience proves that any variety of tulip is not re-produced by seed; and hence the amateurs always have resource to this mode of propagating the plant when they desire to obtain new varieties, which they denominate *Conquests*. In order to obtain the accomplishment of their wishes with more certainty, they take care not to employ any seed but that which comes from tulips having the bottom of the petals of a pure white, because the color of tulips proceeding from such seed develope themselves more rapidly than those produced from other seed. Tulip seed ought to be placed in the earth about the month of October. in ground well prepared for its reception. It should be protected from the frost by layers of leaves or mats. When carefully attended to, the plants will appear above ground towards the end of February. From the size of a pea the first year, the root will increase considerably in the two following springs. "At each of these periods, when the young leaves are faded," remarks M. Tripet, "I spread over my plants about an inch of earth, such as covered the seed originally. Convinced of the disadvantages, such as the loss of time and the occupation of a larger piece of ground, which are necessarily attendant on the taking up of the roots in the

second year, as is the usual practice, I never take up mine until after the third vegetation, and some later. I replant them at a depth of three inches, and two or three inches apart. Latterly, each year, I replant them in fresh ground; convinced, by experience, that they reach perfection sooner by changing the earth, particularly if it has been well manured and fertilized by having contained other plants. No matter what care may have been devoted to the seed, few perfect flowers are obtained in the first blow, which does not take place before the fifth year; in the following years, gradual amelioration of the colors takes place; and those which at first were vague and intermediate, finish at last, though in no fixed time, by assuming clear and distinct characteristics, until they reach all the perfection of which they are susceptible. Every tulip produced by seed, and as yet in a state of immaturity, is called a red (*baguette*), or a color (*couleur*),* and this state many continued for from two to fifteen years. From the period that the plant fulfils the prescribed conditions, it takes the name of *Conquest*, which it retains until some particular appellation is bestowed on it. From the very first blowing, all flowers whose corolla is ill made, or whose petals are thin, or whose stem is weak and bending, or which is tinged with yellow, are carefully removed. When the petals fall, the seed vessels should be broken off in order to give more strength and nourishment to the root. The inutility of the number of offsets which spring up about the young roots, causes them to be rejected during the years which precede the complete development of the colors. After the fourth year, the roots are treated as those of a collection already formed. The offsets of a tulip always re-produce a plant identical with that from which they draw their birth. The period of their coming into blow is always relative to their greater or less degree of development. It is seen from the first to the fourth year. They are planted in September, two, three, or four inches from each other, in proportion to their size, in ground prepared the month before. A vast number would perish from being dried up, if the putting them in the ground was postponed to November. In taking them up and replanting them, the same order should be observed as is followed in an established collection, in order to avoid all uncertainty in distinguishing the varieties. The utility of offsets is exceedingly great, as they serve to repair the losses which a severe season or unforseen acci-

* Synonymous with our breeder

dents may cause to the old collection. In a tulip collection, the size of the roots is not a matter of indifference. It has been remarked that some of them, of huge size, produce corollas which are not properly proportioned. Most frequently they open and lose their value; whilst, if the roots had been of moderate size, they would have been perfect. Experience, however, can be considered the only safe guide in choosing the roots.

"It is not sufficient to unite the most beautiful tulips in the same place, as if they are thrown together by chance or without harmony. Not only must the heights agree, but also the colors. Art in this respect comes to the embellishment of Nature. In order to display as much as possible the richness and value of a fine collection, the following precautions ought to be attended to, as they will be found to facilitate the labor in a high degree.

"If, for instance, you have 500 tulip roots to plant, whose height and color you are perfectly acquainted with, you had better provide ten drawers, with fifty compartments in each. In these, place your roots, in some position where the air will have free access. You can place the drawers in a case, one over the other, with a space between to let in the air, and the whole had better be surrounded with a wire grating, to keep away rats and mice. As you know accurately the classification of your tulips, according to height and color, you can place the roots in proper order in the compartments. Its first series should hold those whose stem is highest, and which should be planted on the top of the bed: the other compartments should hold others less high, until all are filled. The colors ought to alternate as symmetrically as possible, so that the same color should never appear twice together, either longitudinally or transversely. It will result from this disposition of the plants, that, in looking at the bed obliquely, they will appear like a draught-board, with lines formed of an uninterrupted color. When you have properly arranged your roots in these compartments, the next step is to choose out a piece of ground, not moist, open, exposed to the south-east in preference to the south-west, and distant at least fifteen feet from any wall. It is best to give the bed a certain inclination, in order first to see the position of the flowers more easily, and next to facilitate the flowing off of rain or other moisture. Should you desire to make a second bed, it will be best to place it opposite and parallel to the other, with a walk of about four feet between them, and

with the lower part of one bed next to the lower part of the other. By this means the two beds will incline towards each other. In order to renew certainly the principles which are indispensable to bring tulips to perfection, the earth should be changed every two years; and in order to preserve to the plants, the second year, a vegetation as favorable as the first, about 250 pints of liquid manure, of the richest quality, should be poured over the ground in July or August; and in order that every particle of the earth should be impregnated with the essence of this rich addition, the whole should be dug up in a month after, and well mingled together. Should liquid manure not be procurable, the best substitute is manure from the cow's stable. When the earth is properly prepared thus, from the 10th to the 25th of November, the planting of the roots should take place. The bed should be carefully measured, and the roots entered at equal distances. About a wine-glass full of sand should be placed at the bottom of each hole, and the root ought to be covered with about a glass full more, as moisture passes through it quickly, and the roots are protected from insects. When the root is placed thus in its receptacle, it should be delicately covered by the hand with a small quantity of earth. Many persons strike down the root with their fingers, or with a planting stick, but this plan is proved by experience to be hurtful to the plant: the earth is rendered too compact by the pressure, so that the roots do not vegetate easily, and the plant is liable to be injured by moisture, which finds some difficulty in passing through. The borders of the bed should be lined with green sod, or, what is still better, with stone, which will keep out all insects and endure longer.

"Although less attention is paid to tulips when mixed up together, still, in order to obtain satisfactory flowers, it is necessary to turn up the ground several times before they are planted—not to leave them in it more than two years at a time, and not to replant them there but after an interval of from three to four years. A judgment may to a certain extent, be formed of the height of the stem from the size of the root; but this rule has numerous exceptions, though it is the only one which can direct us in the arrangement of tulips, mixed together, whose actual height is not ascertained.

"Tulips, from being exposed to the intemperature of the atmosphere, are subject to certain diseases, which it is of consequence to prevent. From the 14th of February to the 15th of April, they are

generally tormented by snow, hail, and cold rains. The cups formed by the young leaves, at the bottom of which the bud lies shut up, get filled with rain, and the result is, that the water remains there until it insinuates itself into the interior of the root, and either spoils it or impedes its development. Oftentimes a number of roots do not flower at all, or, if they do, the colors are dull and imperfect. To obviate this and many other inconveniences arising from exposure to the weather, it is necessary to shelter them with a covering of sail-cloth, which, by means of cords and pullies, can be extended or rolled up at will. The bed should be covered with this in unfavorable weather, and should be exposed to the rays of the sun, and to gentle rain when the buds shall have appeared from under the leaves. When the blow shall be complete, the covering must be held over the bed during rain, and from nine to four o'clock in case of sun. By this means the duration of the blow will be prolonged, and the beauties of a collection may be admired without any exposure to rain or sun. In the climate of Paris, the blow takes place usually in the first fortnight of May, and endures for about a month. I forgot to mention that, notwithstanding all the care bestowed on a bed, both in the planting and the growth of tulips, it always happens that some roots do not produce their flowers. In order to preserve the symmetry of the bed, which has been affected by their miscarriage, you should substitute other tulips, as like them as you can find in a reserved bed, which I strongly recommend you to establish apart from the other. For taking up the plants thus rendered useless, I employ an instrument, formed with three legs, like a triangle. These close when you please, and taking hold of the root, easily bring it to the surface. The tulips thus substituted, should be carefully marked to avoid confounding them with those whose places they occupied for the season. It is impossible to preserve the necessary order in a tulip collection, unless the roots are carefully entered in a catalogue, with their descriptions—each page might represent one of the drawers, of which I have already spoken. When the bloom is over, the seed vessels should be cut off, in order that the roots may profit by the sap, which would otherwise have been absorbed. The time for taking up the roots is easily ascertained. When the stems roll themselves round your fingers without breaking, then you may be sure that the time for taking up the roots has arrived. This takes place generally towards the end of June, and should be performed

in the same order as was adopted in putting them down. Too tender to be capable of resisting the action of the sun after their extraction from the ground, a great number of roots perish by being exposed to its rays during the short period taken up in raising them. This operation should not, therefore, be undertaken, unless under circumstances calculated to guard them from this danger. When all proper precautions have been taken, I proceed to raise the roots, and in this too much care cannot be given to avoid cutting them. Beware of placing the dibble under them; you will surely wound some, for they are not placed all at the same distance from the surface. First, gently uncover the ground at the sides of the plants, and then uncover the roots; after they have been deprived of their shoots, of their dry skins, and separated from the offsets, I place them in the cases destined to receive them. I then leave them to dry in the shade from morning to evening, for four or five days. During a month, I occasionally expose them to the air, in order to guarantee their perfect dryness. The roots which had been taken away from the bed, on account of their barrenness, ought now to be placed in their respective compartments, if they are sound, for at the succeeding years they may produce magnificent tulips."

Such are the remarks which M. Tripet has thought fit to make on the cultivation of tulips, and we trust they will not prove uninteresting to our readers.

ART. IV.—*Monography of the Genus Camellia, or an Essay on its Culture, Description and Classification;* Translated from the French, by HENRY A. S. DEARBORN.

(Continued from page 300.)

187. C. *Parksii vera.*—Leaves two and one half inches wide and three inches 4 lines long, almost flat, roundish-oval, slightly acuminate, delicately dentated; smooth, of a clear green, resembling a little those of C. *Speciosa vera*; bud large, oblong, depressed at the summit, scales blackish, full, a cherry-red, No. 6; petals of the circumference in two rows, broad, channelled, some recurved, compact, others erect and mixed with those of the interior, which are small, thick, forming an irregular sphere, as in C. *Milleri*, or the

Speciosa vera, of which this variety has the form and dimensions.—*Magnificent.*

188. C. *Præcellentissima.*—Leaves two inches wide and two inches and two lines long, elliptical, slightly acuminate, nerves very apparent, almost invisibly dentate, the summit reflex, as in the C. *Reeswesii*; bud oblong, scales of a yellowish green, flower three and a half inches in diameter and often more, double, cherry-red, No. 5, having a little of the tint of that of C. *Rivinii*; petals of the circumference six, oblong, turned back on the calyx distant from each other, in the form of a star and crenated at the summit; those of the interior numerous, short, equally arranged and forming a bowl, as in the ordinary *Warrata;* in the middle are seen the styles which are very long.—*Very beautiful.*

189. C. *Pictorum coccinea.*—Leaves large, horizontal, and hollowed into a gutter, of a deep green, but very little dentated; bud large, scales greenish; flower more than three inches in diameter and often even four, full, regular, of a cherry color, No. 4; petal broad, handsomely detached, and gracefully imbricated.—*Superb.*

190. C. *Platipetala.*—We possess two Camellias under this name; the first is very much like C. Imperialis, both in foliage and flower; the second has leaves like those of C. *Speciosa vera,* or of C. *Rawsiana.* The flower which is not so dark as that of the two last varieties, has the same form and size; but the bud before it opens, has a white point at the summit.—*Superb.*

191. C. *Rubra simplex,* or *japonica.*—The type, from which nearly all our varieties were derived. See its description at the commencement of the monography.

192. C. *Rubra plena.*—This shrub requires pruning, to give it a graceful port and cause it to flower abundantly; branches greyish, numerous, having a tendency to extend themselves far, leaves ovate-lanceolate, or rounded, curled, reclined, and are often undulated in various directions, of a deep green; bud large, oblong, obtuse, scales blackish; flower three inches in diameter, full, of a cherry-red No. 5; petals of the circumference broad, recurved; those of the interior, swollen, narrow, elongate, numerous, rumpled, and irregularly arranged; bears seed.

There exists a sub-variety of this Camellia known in the commerce of flowers under the name of *Rubra maxima;* it is a more rustic shrub, its flower longer and its port more regular; but both

of these varieties, retain their buds with difficulty. Still if they are kept in a continued temperate atmosphere, from the last of autumn to the moment of floresence, they flower very well in December.—*Superb.*

193. C. *Rex Bataviæ.*—Leaves two inches wide and three inches two lines long, a little recurved at the extremity, nerves very distinct, often spotted with pale yellow; bud large, scales greenish; flower three inches and 3 lines in diameter, double, regular, cherry color, No. 6, becoming darker in proportion as the flower develops; petals not numerous, broad, rounded at the summit, hollowed into gutters and slightly recurved backwards; some of those in the centre rumpled and dislocated; a few stamens in the centre, with very brilliant yellow anthers.—*Very beautiful.*

194. C. *Rossi.*—Leaves large, ovate-lanceolate, curled, recurved towards the stock, very dentate, of a dull green; bud with green scales; flower double, three inches in diameter, of a fine cherry-red No. 4, sometimes spotted.—*Very beautiful.*

195. C. *Rossiana superba.*—Branches vigorous and elongated; leaves ample, rather deeply dentated, nerves very apparent; flower of a medium size, of a deep cherry-red, No. 4, semi-double.—*Handsome.*

196. C. *Roscii* or *Rawsiana.*—See the next.

197. C. *Rawsiana* or *Roscii.*—Leaves two and a half inches wide and three and a half long, oblong, horizontal, a little rolled, recurved at the summit, very finely dentated of a clear green; bud large, scales blackish; flower three inches in diameter, full, deep cherry-red, No. 4, form convex and rumpled; petals of the circumference not numerous, but broad, distorted and thick; those of the interior very numerous, pretty large, compact, unequal, reclined, or erect, some of them marked with a white spot.—*Superb.*

198. C. *Sanguinea.*—Leaves of a medium size, form and color of C. *Aitonia;* bud oblong, pointed, scales greenish; flower 4 inches in diameter, single, cherry-red, No. 5, sometimes blood color; stamens numerous, anthers small, styles long, surpassing, by a third, the length of the stamens; bears seed.—*Beautiful.*

199. C. *Staminea plena.*—We have compared during several years in succession, this plant with C. *Rawsiana* and *Roscii* and have discovered so little difference between these varieties that we think that they constitute but one.

200. C. *Superbissima.* (Sacc.)—Leaves two inches wide and three long; bud obtuse, scales greenish; flower of the largest dimensions double, of a cherry-red, No. 4, often shaded with rose; petals irregularly arranged, but with grace. This variety has been obtained from the seed by Mr Sacco of Milan. He states that the mother plant has produced flowers seven and a half inches in diameter.

201. C. *Sparmaniana.*—Leaves two and a half inches wide and three and two lines long, roundish oval, very slightly acuminated, with very distinct nerves, of a green like that of C. *Wilbanksiana;* bud large, with greenish scales; flower three inches in diameter, double, cherry-red, No. 6, exterior petals round, recurved, the others erect dispersed, with the form and dimensions of those of the flower of C. *Rex Bataviæ.*—*Very beautiful.*

202. C. *Splendens vera.*—We possess two varieties of C. *Splendens:* the first has a single flower, and is not remarkable; the second, whose leaves very much resemble those of C. *Magniflora plena* has a superb appearance; its flowers very large, full, regular, deep cherry-red, No. 5; petals, rounded, imbricated, some of those in the centre contorted, and formed into two separate hearts.—*Superb.*

203. C. *Speciosa vera.*—Leaves two and a half inches wide and three and a half long, rounded, slightly acuminated, fine teeth, flat, of a clear green, glossy, very finely veined; bud with blackish scales at the base and green at the summit; flower large, beautiful, full, of a deep cherry-red; No. 5, petals of the exterior in two or three rows large, regular, recurved upon the calyx, those of the centre irregular, multiplied, close, undulate, rumpled, having a little white spot on the superior part; corolla three inches in diameter.—*Superb.*

204. C. *Tamponeana.* (Berb.)—Leaves close, oval, a little lanceolate, two inches three lines wide and three inches four lines long, with apparent nerves, of a dull green; bud large, oblong, with apple-green scales; flower three and a half inches in diameter, cherry red, No. 5, approaching amaranth, double, well formed; petals rounded in the circumference, regularly recurved upon the calyx, the second row gracefuly elevated; those of the centre smaller, rumpled, sometimes marked with white spots: a few sterile stamens in the centre; flowers abundantly and easily obtained from the seed by Mr Tamponet of Paris.

205. C. *Warrata* or *Anemonæ flora.*—Leaves two inches wide

and three long, obtuse-oval, of a deep and brilliant green, flat, thick, dispersed, reflex; bud of medium size, elongate, with scales always blackish; flower large, double, of a deep cherry-red, No. 6, approaching a purple; petals of the circumference broad, nearly rounded, in number 6 or 7, those of the interior numerous, small, arranged with admirable regularity in the form of a depressed bowl. This variety flowers with facility in warm climates; but in Paris, it is sufficiently inconstant in this respect. When the buds exhibit at their summits a white spot, it is an indication of a certain and easy florescence. This variety has produced very beautiful sub-varieties; they are covered with fruit in Italy.

SECOND GAMUT.

UNICOLORS.

CARNATION COLORS.

Dominant color, rose, lake and cinnabar, as in the numbers 1, and 2 of the colored table.

206. C. *Alba lutescens*, or *Roscoflorescens*.—Leaves oblong, reflex, and rolled downwards towards the summit, regularly dentated, almost flat, of the form and color of those of C. *Wilbanksiana;* bud obtuse-oval, with yellowish scales, flower three and a half inches in diameter, of a dingy white, yellowish, carnation, No. 2, full, totally deprived of sexual organs; petals broad, arranged in several rows. —*Very beautiful.*.

207. C. *Carnea*.—Leaves oval, elongate, two and a half inches wide, and four inches three lines long, dispersed, very much veined and dentated, of a yellowish green; bud obtuse, large, with greenish scales; flower three inches broad, full, flesh-color approaching a pale yellow, as in No. 3.—*Superb.*

208. C. *Incarnata*.—Leaves two inches three lines wide and four long, lanceolate, strongly veined and deeply dentated, of a pale green, flower three and a half inches in diameter, full, arranged in a star, of a carnation color, pale on opening, and soon after becoming of a dingy yellow, a shade above No. 3; petals imbricated, tufted, slightly acuminated, sometimes crenated at the summit, gently leaning on each other, and forming a kind of star.—*Magnificent.*

209. C. *Kewblurk*.—It is a sub-variety of the preceding, flowers, not so regular and not star-form.

SECOND GAMUT.

UNICOLORS.

ORANGE-RED MORE OR LESS DEEP.

Dominant color, lake mixed with cinnabar-red as in Nos. 1. 2. 3. 4. 5. 6. 7. and 8, in the second gamut of the colored table.

210. C. *Anemonæ flora Warrata sinensis.*—Leaves two inches wide and two and eight lines long, oval, obtuse, almost flat, the old roundish-oval, and the new lanceolate, both very finely dentate and with reddish margins, of a green very nearly like that of the orange; bud obtuse, pretty large, with green scales; flower three and a half inches in diameter; full, deep orange-red, No. 6, sometimes shaded above C. *Reeveseii*, with the heart depressed; petals of the circumference in three rows, broad, rounded, those of the centre, narrow, short, mixed with others longer and broader, unequal, and marked in the centre, with one or two white spots. This flower much resembles that of C. *Parksii.*—*Superb.*

211. C. *Atrorubens.*—A very vigorous shrub; leaves large, ovate-lanceolate, attenuated at the superior extremity, very dentate, of a deep green, coriaceous bud of ordinary size with blackish scales; flower three inches in diameter, full, irregular, of a deep orange red, No. 6; exterior petals in three rows, regularly placed, broad, imbricated, recurved and conspicuously displayed; those of the interior smaller, short, elevated, distorted, rumpled and separated from the first, forming a depressed centre; blooms with difficulty.—*Superb.*

212. C. *Augusta rubra aurantiaca.*—Leaves two inches wide and three inches and more long, very much dentated, ovate-lanceolate, acuminated, of a dull green; bud oblong, a little pointed; flower three and a half inches in diameter, double, deep orange-red, No. 8; color, form and dimensions like those of C. *Corallina.*—*Superb.*

213. C. *China.* (Tat.) or *Rives-nova.*—The branches, leaves and wood resemble those of C. *Rubra plena*, of which it is a sub-variety; bud large, oval, with apple-green scales; flower three inches in diameter, full, of a deep orange-red, No. 7; petals elevated, numerous, compact, and arranged as in C. *Atrorubens*, but of a more open globular form.—*Superb.*

214. C. *China large.*—Leaves long, narrow, reflex, of a green, like that of C. *Rubra plena*; flower about three inches in diameter,

full, of the form of the preceding and of a very similar color; petals of the exterior imbricated, entire, rounded at the summit, the borders recurved; a few small petals in the centre, unequal, slightly spotted with white.—*Superb.*

215. C. *Conspicua.*—A shrub which has but little grace in its port; leaves two inches two lines wide and four long, lanceolate oblong somewhat acuminate, undulating, close, reflex, deeply dentated with long petioles of an ordinary green; bud oblong, with green calycinal scales; flower three and a half inches in diameter, regular, full, of a beautiful orange-red, No. 8, approaching carmine; petals of the circumference, arranged in several rows, broad, handsomely imbricated and deeply crenated at the summit; some of those in the centre, long, twisted, and reclining laterally on the ovary.—*Superb.*

216. C. *Chandlerii.* (Chand.)—A vigorous shrub; leaves thick, three inches wide and four long, roundish-oval, horizontal, slightly acuminated, the points bent laterally, very much dentated, veins apparent, of an obscure green; bud large, pointed-oval, with scales part blackish and part yellowish; flower four inches in diameter, rose-form, double, depressed, of a superb deep orange-red, No. 8; petals of the circumference mucronated, imbricated, rounded, regularly arranged, crenated, those of the centre smaller, erect, elongate, folded a little in a cornet form, sometimes spotted with white.—*Magnificent.*

217. C. *Cactiflora.*—Leaves 2 inches and 2 lines wide, and 3 inches 5 lines long, oval, oblong, lanceolate, very acuminate, distant from each other, deeply dentated, strongly nerved; bud oblong, with yellowish scales; flower double of an orange red, No. 8; petals handsomely imbricated, not numerous, broad and regularly arranged; those of the centre, swollen, distorted and intermixed with stamens.—*Very handsome.*

218. *Derbiana Vera.*—Leaves 2 inches 3 lines wide and 3 1-2 inches long, roundish-oval, very acuminate, nerves very distinct, horizontal, finely dentated, surface often spotted with yellow, of a very beautiful green; bud very large, oblong, pointed with apple-green scales; flower 4 inches in diameter, and often more, double, deep orange-red, No. 7, of a brightness difficult to designate, and producing a magnificent effect; the petals of the circumference arranged in several rows, broad, a little spoon-shaped, and crenated

at the summit; those of the interior, narrow, rumpled, of a rose tint; a few sterile stamens in the centre.—*Magnificent.* There is another *Derbiana*, known in the flower market which is not in the least distinguished.

219. C. *Eximia Vera.*—Leaves ovate, lanceolate, large, acuminate, very dentate, horizontal, of an ordinary green; bud large, flattened at the summit, scales calycinal, yellowish; flower 3 1-2 inches in diameter, very full, of a deep orange color, No. 8; sometimes the petals are worked with a white line; they are arranged in six or seven rows, regularly imbricated, rounded, crenated at the summit, forming a beautiful rose, as in the C. *Blanc Double.* [Double white.]—*Magnificent.* There is known in the flower market another Camellia under this name, produced by Mr Knight; its flower is semi-double and but little esteemed.

220. *Incomparabilis.*—Leaves 2 inches 9 lines wide and 4 inches long, roundish-oval, some of them laceolate, acuminate, with conspicuous nerves, of a very brilliant green; bud oblong, large, pointed, with blackish scales; flower large, 4 1-2 inches in diameter, single, deep orange-red, No. 7; eight broad petals, crenated at the summit, many erect and compact stamens. There exist, another Camellia under this name, whose flower is large, full, and like that of C. *Conspicua.—Superb.*

221. C. *Ignescens.*—Shrub vigorous; leaves rather large with small nerves, but well delineated, sprinkled with spots of clear green, upon a more sombre ground; flower of medium size, semi-double, deep orange-red, No. 6, petals flat, imbricated in three rows; many stamens.—*Passable.*

222. C. *Lauchmani.*—A vigorous shrub and of a graceful port; foliage of a shining green; flower large, single, of a deep orange-red, No. 6, velvety; petals ample, erect, bilobed and elongate; stamens short, some of them petaloids; styles very long.—*Passable.*

223. C. *Magniflora plena.*—Leaves large, some rounded and others oval, subcordiform, thick, stiff, glossy, reflex, numerous, of an obscure green; bud oblong, rather large with greenish scales; flowers very double, regular, 3 1-2 inches in diameter, of a deep cherry-red, No. 5, approaching a poppy color; exterior petals imbricated in three rows, very broad, crenated at the summit, those of the centre swollen, roundish, regularly arranged; flowers easily and for a long time.—*Superb.*

224. C. *Punicæflora.*—Handsome foliage; flower 3 inches in diameter, semi-double, irregular deep orange-red, No. 4, inclined to a pomegranate color.—*Handsome.*

225. C. *Pariflora.*—Leaves near, lanceolate, oblong, very acuminate, 2 inches broad and 3 inches 4 lines long, almost flat, finely and irregularly dentated, and of an obscure green; bud large, oblong with blackish scales at the base, and yellowish at the summit; flower 3 inches in diameter, full, regular, deep orange-red, No. 7; petals handsomely imbricated, very numerous, with a depressed heart, containing 2 or 3 sterile stamens.—*Superb.*

226. C. *Palmerii purple Warrata.*—Branches short; leaves flat, rounded, very finely dentated, nerves not very apparent; flower large, full, deep orange-red, No. 8.—*Superb.*

227. C. *Reevesii vera.*—Port not very graceful; leaves few and dispersed, 2 inches 2 lines wide and 4 long, curled, ovate, lanceolate, the point recurved, of a deep green; bud large, pyramidal, with greenish scales; flower 3 1-2 inches in diameter, double, deep orange-red, No. 7; petals of the circumference in two rows, an inch broad and 1 1-2 long, hollowed in the form of a gutter, very much crenated at the summit; those of the centre elongate, narrow, slit into narrow strips and folded at the summit in the form of a dome and leaving a void in the interior, where appear a few stamens.—*Superb.*

228. C. *Renira.*—Leaves 12 lines wide and 2 1-2 inches long, lanceolate, oblong, finely dentated, strongly nerved, of a pale green; flower 3 inches in diameter, double, deep orange-red, No. 7; petals of the circumference very broad, oblong, crenated at the summit, those of the centre not numerous, long, narrow, folded over each other, and resembling the interior of an anemone.—*Superb.*

229. *Rivinii.*—Leaves 1 inch 10 lines broad and 3 inches 6 lines long, ovate, elongate, acuminated, nerved and dentated, horizontal; petioles 10 lines long, of a pale red, which is often extended for a third of the length of the main nerve; bud elongate, pyramidal, with green scales; flower 3 1-2 inches in diameter, of a beautiful deep orange-red, No. 7, very double; petals of the circumference in several rows, oblong, a little spatulate, or spoon-form, crenated at the summit, and arranged in rows; those of the interior, very numerous, erect, and forming a dome, as in C. *Reevesii*; of the same color and same form.—*Superb.*

FIRST GAMUT.

BICOLORS.

FIRST DIVISION.

GROUND white striped or spotted with rose, as in No. 1. of the first gamut of the colored table.

230. C. *Banksii.*—It is the *Camellia Imperialis* under the name of C. *Banksii*, perhaps a little more striped with red, which appears to us to depend on the vigor of the plant.

231. C. *Dianthiflora striata plena.*—Leaves 2 inches wide and 3 inches 2 lines long, ovate-oblong, acuminated, horizontal, very dentate, a little recurved at their summits, very distinct nerves and of rather a deep green; flower large, very double, of a pretty form, resembling very much that of *Camellia Imperialis.*

232. C. *Delicatissima.*—Leaves 2 inches wide and 3 1-2 long, ovate oblong, attenuated at their two extremities, those of the superior having rather long points; flower 3 1-2 inches in diameter, double, rose-form; heart very large, being 2 inches 5 lines in diameter, petals curled, sinuous, irregular, those of the periphery, larger, being an inch and more broad, entire or sinuous, all white, striped with rose, stripes both large and small, and pretty numerous.—*Superb.*

233. C. *Elegantissima.*—Leaves large, ovate-lanceolate, strongly nerved, of a deep green; flower double, 3 inches in diameter, ground white, striped with rose.—*Superb.*

234. C. *Gloria Mundi.*—There are, under this name, two different Camellias; the first has leaves 2 inches 9 lines broad, and 4 inches long; form, color, and dimensions of C. *Imperialis*, when this is very vigorous; bud large, obtuse, with greenish scales; flower of a white ground, striped with rose, as in the Camellia above named, from which it differs but very little; only the heart is slightly yellowish. The second has leaves very nearly like those of C. *Grandiflora simplex*; its flower is double, cherry-red, No. 2, and very regular.

235. C. *Imperialis.*—Leaves 2 1-2 inches wide and 3 1-2 long, roundish-oval, very acuminate, rolled backward at the summit, horizontal, very much dentated, with strong nerves, of a clear green; bud egg-shaped, large, with greenish scales; flower three and a half inches in diameter, full, irregular, with a white ground slightly

tinted or striped with rose; petals of the circumference broad, flat, recurved, crenate at the summit; those of the interior narrow, distorted erect, united and forming an arched centre almost hemispherical, rumpled, resembling a Flemish pink, with a white ground striped with red. Petals entirely rose-colored are sometimes seen in this flower.—*Magnificent.*

236. C. *Imbricata alba.*—Leaves three inches wide and from four to five long, dispersed, oval, elliptical, attenuated, at the two extremities, handsomely nerved, point recurved downward; flower three and a half inches in diameter, spheroidal, very full and forming a regular rose, the petals of which gradually diminish in size towards the centre, and are mutually imbricated from the centre to the circumference, each has a free border, a little sinuous, entire, two lines broad in the centre and augmenting to twentyfive lines in the periphery; they are white with distinct red or white stripes. —*Magnificent.*

237. C. *Punctata simplex*, or

238. C. *Single striped.*— Leaves two and a half inches wide and three long; form, color and dimensions of C. *simplex alba*;— flower of medium size, single, white, striped or dotted with rose.— *Insignificant.*

239. C. *Pictanata.*—Leaves three and a half inches wide and four long, near, acuminated at the summit and rounded at the base, oval, elliptical, the point bent downward, shining; flower three and a half inches in diameter, spherical, very double; petals of the centre and also those of the circumference curled, sinuous, irregular, folded; those of the periphery entire, of a pure white, and occasionally some of them striped with red; a few stamens.—*Superb.*

240. C. *Regina Galliarum*, or

241. C. *Eclipse.*—Leaves and bud like those of C. *Imperialis*; flower three and a half inches in diameter, full, a little arched in the centre, ground white slightly spotted with rose; petals of the exterior recurved symmetrically, twisted and striped, as in the flower of C. *Imperialis*; this has heretofore been called the *Eclipse*; but the Messrs. Bowman have named it C. *Regina Galliarum.*—*Superb.*

242. C. *Sabina.*—Leaves of a medium size, roundish-oval, slightly acuminated, bud pyramidal, with green scales; flower large, full, and of a very pale or whitish carnation color.—*Superb.*

243. C. *Stryphosa.* (Rap.) Leaves of a medium size, ovate-lan-

ceolate, slightly acuminated, much dentated, of a beautiful green; flower double, large, ground white, striped or more properly dotted with rose and red; handsomely formed.—*Superb.*

244. C. *Spoffortiana.*—A vigorous shrub and of an elegant port; leaves oval, horizontal, nerves salient, of a deep green, teeth distant and very acute; buds very large, with greenish scales; flower three inches in diameter, full, of a milk-white with a few red stripes.—*Superb.*

245. C. *Victoria antwerpiensis.*—Leaves two inches three lines wide and four long, some roundish-oval, others lanceolate, acuminate, of a dull green; flower very double, three inches in diameter, exhibiting some rose stripes on a white ground.—*Superb.*

FIRST GAMUT.

BICOLORS.

SECOND DIVISION.

Ground rose striped or spotted with cherry-red, as in No. 1, of the colored table.

246. C. *Colvillii vera.*—Shrub very vigorous; leaves three inches three lines wide and four inches seven lines long, broad, roundish-oval, a little acuminated, much dentated, with very salient nerves, thick, horizontal, slightly recurved downward, of a very deep green; bud very large, with scales, blackish on the border and yellowish in the middle; flower three inches and ten lines and often more in diameter; ground color clear rose, one shade darker than No. 1, and striped with carmine-red; form and disposition of the petals as in the flower of C. *Punctata plena*, but of greater dimensions.—*Magnificent.*

247. C. *Gray Venus.*

248. C. *Gray.*

249. C. *Eclipse.*

250. C. *Splendida.*

251. C. *Venusta.*

252. C. *Punctata plena.*—All these *Camellias* are sub-varieties, which resemble each other so much, that it is better to consider them as a single one. See below C. *Punctata plena.* All these double denominations came to us from beyond the sea.

253. C. *Punctata plena.*—Shrub vigorous and of an elegant port; leaves oval, almost round, two and a half inches wide and three and

a half long, with very prominent nerves, much dentated, of a deep green; bud large, depressed at the summit, with apple-green scales; flower three inches in diameter, full, ground rose, marked with cherry-red lines, No. 1; petals of the circumference broad, crenate at the summit, and convex; those of the centre small, elongate and erect; floral form of C. *Imperialis*, but the mixture of its colors renders it more apparent. This Camellia sometimes produces flowers, entirely red or rose, and without stripes. We think that C. Preston Eclipse is identical with this, and that this accidental variety has been established by grafting.—*Magnificent.*

254. C. *Punctata major.*—Shrub vigorous; leaves broad, oval, nearly four inches long and three and a half wide, of a glossy green, finely veined, dentate, point bent downwards; flower four inches in diameter, considerably double, of a beautiful clear rose, No. 2, finely striped with blood-red, and spotted with white; corolla rose-form.—*Magnificent.*

255. C. *Rosa mundi.*

256. C. *Splendidi id.*

257. C. *Venusta id.*—See

258. C. *Punctata plena.*

FIRST GAMUT.

BICOLORS.

THIRD DIVISION.

Ground clear or deep cherry, spotted with white.

259. C *Aglæ.*—Leaves two inches nine lines wide and three and a half long, reflex, roundish-oval, acuminate; buds with green scales; flower three inches in diameter, double, ground cherry, No. 2, often of that color only and sometimes spotted with white; stamens mixed with a few interior petals, flowers easily and abundantly.—*Very handsome.*

260. C. *Adonidea.*—Leaves very nearly like those of the *Preston Eclipse;* flower large, very double, of a cherry-red, No. 1, striped with white, form of a Flemish pink. We think that this dahlia is a sub-variety of *Preston Eclipse*, modified by culture.—*Superb.*

261. C. *Cariophyllæ flora*, or

262. C. *Dianthiflora.*—Shrub very vigorous, of not a very graceful port; branches expanded, recurved; leaves of ordinary size, a

little inclined on the branches, elongate-oval, strongly veined; bud with blackish scales, elongate, acute; flower broad, sometimes double and often single, cherry-red, No. 2; petals of the circumference subcordiform, broad, dispersed, in number 7; those of the centre swollen, erect, numerous, striated with white, and forming by their union an arched centre. The late flowers are single and the centre is full of stamens. This variety bears seed and produces superb sub-varieties.

263. C. *Coronata Rosa.*—Leaves two and a half inches wide, and four long, roundish-oval, a little acuminate, strongly nerved, deeply dentated, of the same green as that of C. *Imperialis*; flower large, double, well formed, deep cherry, No. 1; exterior petals broad, handsomely arranged, gracefully displayed, striped or spotted with white; those of the interior, smaller, contorted, and also striped or spotted with white.—*Superb.*

264. C. *Cardinalis*, or

265. C. *Moencii.*—Leaves pretty large, near, a little curled, borders very dentate, nerves very apparent, surface uneven; bud oblong, with yellowish green scales; flower semi-double, rather large, deep cherry, No. 1, with some shades clearer than that of C. *Variegata plena*; petals of the centre intermixed with fertile stamens, of different lengths; calyx divided into four segments, as in C. *Sophiana*, the styles surmount the bud before it expands.—*Handsome.*

266. C. *Douklari.*—Leaves two inches broad, and four long, flat, near, ovate-oblong, attenuated at the two extremities, and the superior reflex, of a shining apple-green regularly dentated; bud calyx in fine green divisions, papyraceous, reddish at the base, five lines broad and eight long; flower from three to four inches in diameter; petals about 20, an inch broad, and nearly two long, ovate-oblong, obtuse, entire, cherry-red, No. 1, variegated and sprinkled with white; the heart of the corolla is composed of from four to six curled petals, between which are perceived several fertile stamens, with others in a petaloid state.—*Magnificent.*

267. C. *Fioniana.*—Leaves small, lanceolate; flower small, red, splashed with white, double; it is an odd variety, derived from C. *Variegata*, which has been established by grafting.—*Pretty.*

268. C. *Melinetti.*—Leaves two inches wide, and three and three lines long, roundish oval, slightly acuminated, deeply dentated,

strongly nerved, recurved in a shell-form, forming a parasol in the manner of those of C. *Colvillii vera;* flower large, full, of a beautiful cherry-red, No. 3; petals bordered and striped with pure white. —*Superb.*

269. C. *Marmorata.*—A shrub with yellowish branches, leaves roundish-oval, deeply dentate; bud small, rounded at the base, a little pointed at the summit; flower semi-double, cherry-red, No. 1, a little spotted with white, or rather, marbled with white.—*Passable.*

270. C. *Phillippe* I. or

271. C. *Mexicana.* (Sac.)—Leaves of a medium size, oval, a little lanceolate, of a deep green; bud pointed-oval; flower medium double, cherry-red, No. 2, spotted with white; it is very like the flower of C. *Fioniana,* a little more spotted with white.—*Passable.*

272. C. *Variegata plena.*—Shrub very vigorous; leaves, some rounded and others lanceolate, flat or revolute, very much dentated, with strong nerves, of a very deep green; this rustic shrub promptly attains a considerable elevation, in all climates, and flowers easily and in a short time; it sometimes bears seeds, especially when in the open ground. Very beautiful sub-varieties have been obtained from its seed; bud large, oblong, a little acuminate at the summit, with scales always green; flower three and a half inches in diameter, sometimes even four, cherry-red, No. 3, irregularly spotted with white; petals ample, recurved, some crenate and others entire at the summit; some of those in the centre erect and intermixed with stamens. In winter the flower is spotted, in the spring it is almost entirely red.—*Magnificent.*

273. C. *Variegata monstruosa.*—Leaves very nearly like those of C. *Crassinervia*; bud large, obtuse, with greenish scales; flower large double, of a cherry-red, No. 2, spotted with white.—*Beautiful.*

274. C. *Versicolor.*—We have in our collection, several Camellias under this name; that here described is a plant which has large leaves, roundish-oval, attenuated at the summit, near, of a deep green, and of the kind of those of C. *Chandlerii;* bud oval, scales blackish; flower pretty large, double, of a deep orange-red, No. 4. with roundish petals dotted with white in the middle; they much resemble those of C. *Deana Superba.* The other *Versicolor,* has a flower very like that of C. *Variegata plena,* the white is a little more regular; the leaves are reflex and have the point recurved downwards.

Art. V.—*Remarks on the Crested Amaranth, or Cock's Comb,* Celosia Cristata.

The flowers of this plant are so numerous and small, and so closely set together on an irregular and flatish surface, that it frequently looks more like a piece of rich velvet than a vegetable substance. We do not find it placed in floral language, and have therefore given it as the emblem of singularity. It is a native of several parts of Asia, and is common in Persia, China, and Japan, where we are informed it is grown to such perfection, that the crests or heads of flowers are frequently a foot in length and breadth. The most perfect plant of this kind grown in England, was grown by Thomas Andrew Knight, Esq., and sent by him to the Horticultural Society of London in October, 1820 ; a drawing of this extraordinary flower is now to be seen in the library of that institution ; the flower of this extraordinary plant measured seven inches in height, and eighteen inches in width, it was thick and full, and of a most intense purplish red color.

In producing this singular plant, the first object was to retard the protrusion of the flower stalk, so as to give it as much strength as possible. The compost employed was of the most nutritive and stimulating kind consisting of one part of unfermented horse-dung, fresh from the stable, and without litter, one part of the burnt turf, one part of decayed leaves, and two parts of green turf, the latter being in lumps of about an inch in diameter, in order to keep the moss hollow, that the water might have free liberty to escape, and the air to enter. There are varieties of cock's combs with yellow, red, purple, and white corollas.

Erratum.—1st page of this number, 5th line from bottom, for "fire" read fir.

QUINCY MARKET.

[Reported for the Horticultural Register.]

APPLES, common, for cooking,	bushel,	75 to 1 00.
Porter,	do.	1 25.
Fine sweet, for baking,	do.	1 00 to 1 25.
BEANS, Saba,	quart,	20.
common sorts,	do.	12.
BROCCOLI,	head,	12 to 25.
BEETS,	bushel,	75.
CABBAGE,	dozen,	50 to 1 00.
CAULIFLOWER,	head,	12 to 25.
CARROTS,	bushel,	50 to 75.
CORN, sweet,	dozen,	12.
CRANBERRIES,	bushel,	1 00.
Eastport,	do.	3 00.
CUCUMBERS, for pickles,	hundred,	17 to 20.
CELERY,	root,	6 to 8.
GRAPES, Sweetwater,	pound,	25.
Black Hamburgh,	do.	62 to 75.
HORSE RADISH,	do.	8 to 10.
MELONS,	each,	12 to 25.
NECTARINES,	dozen,	50.
ONIONS,	bushel,	1 00.
PARSNIPS,	do.	75.
PARSLEY,	half peck,	25.
PEARS, good sorts,	bushel,	2 00 to 3 00.
St. Michael,	dozen,	25 to 37.
Bartlett,	do.	37 to 50.
PEACHES,	bushel,	2 00 to 3 00.
fine varieties, extra size,	dozen,	25 to 50.
PLUMS, common,	quart,	12.
extra varieties,	do.	25 to 37.
POTATOES,	bushel,	67 to 75.
PEPPERS,	pound,	5.
RUTA BAGA,	bushel,	50.
SQUASHES, Canada crook neck,	pound,	1 to 1 1-2.
Marrow,	do.	1 1-2.
TOMATOES,	peck,	25.
TURNIPS,	bushel,	50.

Boston, September 12, 1838.

THE

HORTICULTURAL REGISTER,

AND

GARDENER'S MAGAZINE.

OCTOBER 1, 1838.

Art. I.— *Biographical Sketch of the Family of Daphne.*

Mr Editor — Having noticed some time since, a biographical sketch of that interesting family the Camellia of Japan, I beg leave to introduce a short sketch of a more modest, although not so popular a family, the origin of which is European.

The family of Daphne's seem to derive their origin or primogeniture from the ancients, as their first *data* are lost in oblivion, and the only clue we have to their generic is from the celebrated heroine of the chase, Daphne, from whom it is pretty authenticaly known the present modest family's ancestors first derived their prænomen. Of this lovely family we have but few that have found their way among us from the other side of the Atlantic Ocean, and it is much to be hoped, that as the passage and conveyance is now daily improving, more of the relatives of those already among us will be introduced. Miss *Daphne odora*, a native of the south of Europe, was the first, I believe, that was here introduced to the ladies of America; and her modest attire, and *sweet* and agreeable demeanor has gained for her, the love and esteem of every person who has ever been made acquainted with her ladyship; indeed, to speak of her characteristically, she has been truly adored by all who ever knew her. Her attire is a modest green, and in the winter, when she is the constant companion of the fair sex, her general costume is prettily decorated with purple florets, highly perfumed with the most exquisite fragrance, and she is seen at all the balls, plays, and places of resort where the fair sex assemble.

Daphne *colina*, a sister to Miss Daphne *odora*, was introduced soon after her sister, and into nearly the same circle of acquaintance; she is from the same country, and although her costume and demeanor is nearly the same, she does not appear to have gained that general esteem as a companion to the fair sex; however, she is frequently seen among respectable circles, where she is more cherished as a domestic companion than a gay lively belle of pleasure and gaiety. To these may be added Miss Daphne *Alpina*, originally from the cold Alpine mountains of Italy, where she assumes a healthy and ruddy appearance, she is of a low, modest stature, and although not so attractive as the elder sister, Daphne odora, she is much admired by the curious for her modest appearance and little attention to attract the notice of every admirer. To these sisters a very near kin to Miss *odora* has found her way among the lovers of her family, Daphne *variegata*, who is very similar to her elder relative, but her dress is something different, having her green mantle bordered with a gold or silver lacing which makes her admired by the gay; but for sweetness and modesty she is far inferior to her predecessor. With a hope Mr Editor, that this family may become more familiar amongst us,

I remain

Your most obedient,

FLIRTILDA.

Art. II. — *French Horticulture.*

The modes of cultivation pursued in other countries are always an interesting study to the horticulturist, whether they present new and striking features, or merely follow in the path we have traced out for ourselves. If they agree with our plans of proceeding, they serve to confirm the correctness of our judgment, and encourage us to proceed steadily in the course we have hitherto pursued; if, on the contrary, they present points of difference, it is not unlikely that they may suggest such improvements as will eventually prove of great benefit and profit. It is from a conviction of the utility of comparing our own notions on horticulture with those of our continental brethren, that we are always careful to lay before our readers

such intelligence as we receive from France and Germany. We are enabled this month to give some account of a very interesting excursion lately taken by M. Poiteau, the celebrated French horticulturist, in the neighborhood of Fontainebleau. His principal object, in making his little tour, was to examine the plantations of evergreens and American oaks laid down by M. Vilmorin, on his property near Montargis. This property, consisting of about 1200 acres, is called Les Barres. It extends, without interruption, for something more than a league from east to west, and is cut in the centre by a small valley, which serves as the bed of a stream of some breadth, admirably fitted for breeding fish, and sufficient to turn any mills that might be erected on its banks. Curiously enough, the soil to the west of the little valley is silicious, whilst all the ground to the east is calcareous. The high road to Lyons passes close to the property, and the demesne is crossed in various directions with country roads, establishing an easy communication with the neighboring habitations. The whole estate is divided into four farms, of which two, containing about 600 acres, are in the hands of M. Vilmorin himself, and on them he makes his experiments in planting. It is not our intention to follow M. Poiteau, step by step, in his interesting examination of this property. We shall merely choose out such passages as may be of value to the readers of our Journal generally, giving them in M. Poiteau's own manner.

A Gigantic Apple Tree. — "In examining the country, and from the appearance of the thickets scattered about here and there, I am inclined to think that, not many years ago, the whole district was covered with forests. One sort of tree is seen here more frequently than the others, and that is the sorb-apple, many of which appear hundreds of years old. One of these trees, in a hedge not far from M. Vilmorin's habitation, appeared to Bosc not less than from 800 to 1000 years of age. I am not aware on what calculations Bosc has formed his opinion; but I think that 600 years must have been the extent of its existence. It is probably the oldest sorb-apple tree in France; its trunk, which is about four feet in diameter, is exceedingly short, being divided, at about six feet from the ground, into five enormous branches. The value of this tree cannot be well ascertained, but smaller ones, whose trunks were twelve or fifteen feet without branches, have been estimated at 100*l.* or 120*l.* The fruit of these trees is carefully gathered to make a

sort of cider, considered in the country far superior to that made from common apples or pears. The wild pear tree, with small tart fruit, is common enough in this district; but a variety of it called the "sage pear tree," probably because its leaves are white like the sage plant, is seen in as great quantities as in Burgundy; and makes delicious perry. It bears a load of fruit, and is well worth being introduced into other districts."

State of Agriculture. — "At the aspect of these uncultivated plains, which are manifestly so ill-adapted for tillage, where a badly constructed plough just scratches the earth once every two or three years, it is natural to inquire, why trees are not planted along the roads, to break the tiresome monotony of barrenness? M. Vilmorin asked himself the question on taking possession of his property; and since then he has been constantly engaged in efforts, both by his example and his advice, to induce the inhabitants to improve the appearance of the country. He had, at first, to combat both a system of blind routine and a host of deeply-rooted prejudices.

"It is almost incredible that, in the midst of France, within fifty miles of Paris, in the 19th century, he should have to fall in with farmers, who, with three or four hundred acres in their possession, should refuse to grow a single load of fodder, and should purchase all the hay necessary for the keep of their horses! — farmers who sowed their seed on fallows, still covered with thistles — who manured their wheat land at the rate of two or three little cart-loads an acre, or often put down no manure at all! Thanks to M. Vilmorin, his farmers are no longer in a state of such gross ignorance; but the thistles of his neighbors still introduce themselves, and defile his ground. Yet ten years have elapsed since he began his improvements."

Cedars of Lebanon. — "To turn to the best advantage land which was manifestly unfit for either tillage or grass, M. Vilmorin planted seeds of various trees, in order to judge which would succeed best, and he has already experienced the most satisfactory results in his experiments of evergreens in a silicious soil. The sylvestre pine, and all its varieties, the maritime pine and the laricio, grow there with great luxuriance. The growth of this last-named tree is a remarkable circumstance, and ought to be carefully noted. The *pinus strobus*, and the other American pines, are also there in

great numbers. The cedar of Lebanon, the colossus of the vegetable kingdom, after a long and delicate infancy, has at last pushed forth most vigorously, and promises ages of prosperity. M. Vilmorin's estate will be, perhaps after some years, the only spot in the world where this tree will be found in any considerable numbers; for Mount Lebanon itself does not possess more than twenty, and few persons plant more than two or three in their pleasure-grounds."

Calcareous Earth and Pine Trees. — "But if evergreens or resinous trees succeed perfectly well in poor silicious ground, the very opposite is the case in poor calcareous land. The attempts of M. Vilmorin on this point have hitherto been exceedingly discouraging. He does not, however, despair of seeing trees of this description at last succeed well enough in calcareous land, to make a fair return to the planter. He founds his hopes on the fact, that thousands of acres in Champagne, as chalky as his own, are covered with pines and evergreens, and promise at last, though at some distance of time, to recompense the farmer for his time and trouble. It is only fair to state, that M. Vilmorin has suffered dreadful losses in these experiments, in calcareous land, from the white-worm. I may add, that my own experience leads me to believe, that calcareous ground is not fitted to the rapid growth of evergreen resinous trees. For fifty years I have been in the habit of seeing the mound in the Jardin des Plantes, at Paris, called *The Labyrinth;* and, during these fifty years, I can perceive little difference in the appearance of the evergreens planted on it; they are in the same state and nearly the same height. Now, if it be borne in mind that this mound was formed of the remains of old buildings, substances composed of carbonate and sulphate of lime, it will tend to prove that calcareous earths are not fit for evergreens; and that the resinous trees planted in Champagne must still be waited for many years until they arrive at a good growth."

American Oaks. — "These trees have been included, to some extent, in the experiments of M. Vilmorin, and he can now declare that no species of this tree will succeed, even in a middling degree, in bad calcareous land; whilst some succeed perfectly, and others tolerably, in poor silicious land. He has planted a great number in land of this description, and there is every reason to believe that the results will be most gratifying, particularly as similar experiments, on a vast scale, made on a poor sandy soil in the Bois de Boulogne,

near Paris, by M. Dandre, have been attended with unhoped-for success. It is probable that, if so few American oaks are seen in France, after so many attempts made to extend them during the last century, the reason will be found in the fact, that they were planted in earth which was not suitable to them."

Poplars. — " M. Vilmorin has made many experiments relative to this tree, and he finds that the plantations which he has made in silicious or sandy ground, succeed most satisfactorily for every description, whereas only a few succeed well in calcareous soil. Thus, the *populus nivea*, Fich, of the same age, is a third or half stronger in a silicious ground than in a calcareous one. The poplar of Canada, *populus Canadensis*, Lin., is in the same case; whilst the Swiss poplar, *populus Virginiana*, Lin., grows well in calcareous land, and astonishingly well in certain parts of it. As to the *populus nivea*, M. Vilmorin does not consider that, in size or height, it equals the white poplar of Holland, *populus alba*, Lin. This latter species must always be preferred, when a larger trunk and good height are required, but the other is superior in the beauty of its foliage."

Elms. — " The twisted elm has always been an object of solicitude to planters, from its being the only wood fit for making good stocks for carriage wheels. M. Vilmorin has received several packets of plants from various parts of France, and is inclined to believe that there are at least two distinct varieties. Although botanists regard this tree as a variety of the common elm, yet arborists are authorized to believe that it is a natural kind, since the seed of the common elm never produces it. However this question may be decided, the twisted elm grows perfectly well in the poor calcareous ground of Les Barres, and M. Vilmorin plants a great number every year. It grows there more rapidly than the common kind, and is a far handsomer tree; the bark is quite smooth, of a deep green, and enables one to distinguish the variety at a glance. When about twelve or fifteen years old, it may be seen that, under the bark along the length of the trunk, there are formed lumps or elevations, which appear to be produced by the interlacing of the fibres, and from these arises that wonderful resistance which the wood opposes, when an attempt is made to split it. It is this quality which renders it so appropriate for the naves of wheels. There is nothing extraordinary in this tree succeeding so well in the cal-

careous lands of M. Vilmorin, for, of all trees, elms are those which grow best in that description of earth. Near Paris, at Bourg-la-Reine, there are some splendid elms along the road, and the roots of these are all fixed in a white calcareous bottom, nearly pure, covered with only a few inches of vegetable earth. Yet, although these trees are exceedingly beautiful, and have acquired a vast size from age, they would be still finer in an aluminous soil, and here is proof of the assertion: All the land of the plains, through which the road from Paris to Meaux passes, is of a calcareous nature, but of good quality. The elms which line the road appear exceedingly fine, as long as no others have been seen; but when the traveller has passed Meaux, in taking the road to Ferte-Milon, he sees elms, no comparison more beautiful, and of a green far deeper. The reason is, that the earth is no longer calcareous; it is aluminous, the soil of all others best suited to the tree. There is this difference between the beech and the elm, that, although they both grow so well in calcareous ground, yet the beech is fondest of moisture, and the elm of a calcareous soil exceedingly dry. Some years ago, the government desiring to afford pleasure to the inhabitants of Paris, by replacing the dark and monotonous green of the elms on the Boulevarts, by a variety of foliage, applied to the Society of Horticulture for a list of trees, either foreign or indigenous, which might be advantageously intermingled, so as to produce an agreeable effect to the eye. The Society hastened to fulfil the duty demanded of them, and remitted to the Minister of Public Works the names of certain trees, with varied foliage. I regard it as most fortunate, that the government changed their intention, and did not follow their first idea, for the soil of Paris has become so eminently calcareous from the constant additions it has received from old buildings and repairs since it was first erected, that there is scarcely a tree which can grow there satisfactorily, excepting the elm; and if a variety had been then planted in place of the elms, nothing would now be seen but dead or dying trees."

Melons. — "On quitting Les Barres, I repaired to Montargis, and whilst waiting for the coach, which was to take me to Fontainebleau, I inquired if there was not some garden in the vicinity worth visiting. "None," I was told; so I went towards some gardens, situated in marshy grounds, at both sides of the road to Paris, in which I had perceived, when passing a few days before, a prodi-

gious quantity of melons, of which I wished to learn the species and the cultivation. As I expected, these marsh-gardens were not so well cultivated as those of Paris; but I was not a little surprised to see, at this latitude, large squares completely covered with melons, either ripe or nearly so, the whole springing up in the open air, without dung, without a bed, without glass, or any shelter whatever. These gardeners simply make a hole of some feet square, which they fill with manure and cover with earth. On this they sow their seed close to each other; they afterwards transplant them in fresh ground, like cabbages, in a square of the garden. They only cultivate one kind, because it is the only one, they told me, which can accommodate itself to such simple cultivation.* It is an oval melon, of middling size and netted. The day on which their melon harvest commences is about the 12th of September. The finest sell for about ten or twelve sous (fivepence or sixpence). Although these marshes are inferior to those of Paris in point of cultivation, yet the gardeners of Montargis are exceedingly intelligent, industrious men. As their gardens produce much more vegetables than is required for the town, they send their wives eight or ten miles distance to sell the produce. In course of time they purchase land, and become small proprietors, and thus it is that the land round Montargis, formerly so barren, is now in such good cultivation."

Food for Cattle. — "From Les Barres to Nemours, I saw the boys and the girls of the neighboring villages, perched up in the trees, pell-mell, which lined the road. These were elms, and the business of the young population above, was not only to gather the leaves, but to break down the young branches, in order to take them away as food for cows. Many trees had not a single leaf but at the extremity, where the hand could not reach. I was astonished at this license, and I spoke of it to an intelligent farmer whom I afterwards met, and he informed me that it was the custom of the country, and that the leaves and young branches were a great resource in feeding cattle. This explanation reminded me that I had seen, on several properties, elms cultivated with a bull-head, for the express purpose of enabling a servant to take off the leaves by means of a short ladder. In such cases I make no objection, for a proprietor can do what he pleases on his own property, but that the

* A clever horticulturist has since told me, that the melon which succeeds best with a very simple cultivation, is the sugar melon, with white flesh (*sucrin a chair blanche.*)

government should permit the custom of pulling off the leaves, and breaking the branches of public trees, and that no obstacle should be interposed to prevent such disfigurement, is what I cannot conceive."

Gardens of Fontainebleau. — "For sixteen years I had not seen Fontainebleau. I found there old friends, who received me with the greatest kindness. I mention particularly M. Souchet, who replaced me in the care of the English garden* of the palace, when I was appointed to the Royal Nurseries of Versailles; and M. Brassin, entrusted with the care of the Park and the Royal Vinery, which furnishes the finest grapes that appear at Paris. It may be easily imagined how delighted I was to re-visit the English garden of the place, which had passed into my hands, almost on leaving the hands of M. Hurtaut, who had laid it down. With what interest I sought for those trees which I had planted myself sixteen or seventeen years before! As I expected, the general plan was preserved in the same form as when I left it; but the grace of infancy, the freshness of youth, had disappeared, to give place to a physiognomy more decided and more powerful. The huge squares of plantations, which, in my time, looked gay and light, had become vast forests through which but little light could penetrate. The large pieces of grass had become narrowed by the branches of trees spreading out on all sides, and the whole look was different. How sixteen years increase the growth of a tree! How mistaken are they who give as an excuse for not planting, that the enjoyment is too long to wait for! The enjoyment comes more quickly than they think. The land of Fontainebleau is exceedingly silicious, tolerable in some parts, and absolutely bad in others. It is now twenty-two years since the garden was laid down, and if all the wood which has been already taken was added to that now standing in it at present, the proceeds in money would certainly be greater than could, by any process of cultivation, be drawn from the same land in the same length of time."

Dahlias. — "For a very long time M. Souchet has been celebrated for his beautiful dahlias. His collection certainly appeared to me a fine one; but, without meaning any offence to my good friend, I must declare that I have seen finer ones. Amongst many

* The name generally given to the ornamental grounds and shrubberies of a gentleman's house in France.

varieties of phlox obtained from seed by this excellent horticulturist, I remarked one admirable for its large scarlet flowers. I was favored by M. Souchet with a plant, in order to multiply it, and distribute it amongst the nurserymen. A seedling of the *salvia fulgens* also has furnished a variety, with far larger flowers and more brilliant than those of the original, and which will take its place in the trade."

GRAPES. — "M. Brassin has under his care two objects of a very different nature — the grand park in the style of Le Notre — and the Royal Vinery; I intend speaking of the latter object alone. This vinery, the origin of which is taken back as far as Francis the First's time, is, without dispute, the finest and largest in the world. It is a wall about a quarter of a league in length, running from east to west, about ten feet high for three-fourths of its length, and eighteen to twenty in the rest. It is covered on the south side with a kind of grape called *chasselas*, the fruit of which acquires, at Fontainebleau and at Thomery, quality and beauty which do not distinguish it elsewhere. It is useless to say that, since its origin, the wall has been many times repaired and rebuilt, and that the vine has been frequently replanted; but that which is little known, and little practised in any other place, except Fontainebleau and Thomery, is the clearing of the vine, or the replacing the vines of which the grapes appear degenerated or inferior, by others whose fruit is of the finest quality. It is by this practice that the Royal Vinery preserves its superiority over all others in the kingdom. There exists, at present, but one plant of all those which M. Brassin found there seventeen years ago; and many of those which he has since planted have been replaced by others considered of better quality. The present appearance of the Royal Vinery is really beautiful.

"M. Brassin communicated to me the two following facts, which I think worth publishing for the sake of horticulture: he had always been in the habit of following the custom, adopted every where, of enriching the earth of his grapery with dung, and he at last is able to prove that this application impairs the quality of the grape. At present, he applies no more such manure: he gets together the cleansing of ditches, grass-turf, sweepings of roads, and filth, and mixes them well together. He suffers the mass, thus prepared, to ripen for two years, and makes use of it in place of dung. This confirms what has already been ascertained, and what the best

authors have recommended; but the second communication is altogether novel, and I am going to arrive at it by a transition as natural as possible. When the maturity of the grapes is at hand, or when in backward seasons fears are entertained that the ripening will not be easy, it is usual for the greatest number of persons, even gardeners, to cut and pull off all the leaves which are before the fruit, in order, as they allege, that the sun may shine full on it, and ripen it speedily; and although experience proves, that the more the leaves are removed the less the fruit ripens, custom always causes the leaves to be taken off in abundance, at the expense of the quality of the grape, which then wastes away and gets wrinkled in place of becoming ripe. M. Brassin acts altogether differently with his. He knows that the leaves cannot be removed in a great number with impunity, from around the grapes, and he is therefore exceedingly cautious, and refrains from removing any of the leaves in front of the fruit. Those which he takes away are those behind, lying between the grapes and the wall, in order that the heat of the sun, being reflected by the wall, may strike the grapes from behind, and produce the effect desired. I have had experience of the efficiency of this proceeding; and I do not hesitate to recommend the practice of it, whilst I condemn the old custom of taking away the leaves in front. One ought to possess some notions of vegetable physiology, in order to take away leaves properly, otherwise the fruit is sure to suffer."

Orange Trees. — "M. Faucheux, nurseryman at Fontainebleau, rears orange trees in great numbers. Of two grafts, or modifications of grafts, which he uses for multiplying them rapidly, one appeared to me so excellent in its results, that I think it worthy of being made known. Get a young citron tree of one or two years growth — it must be put in sap by the means generally practised, if it is not so already. When the buds begin to get long, the head of the plant is cut off above three or four of the best buds; a slit is then made with the grafting-knife, between the stem and the second or third bud in descending, so that the bud and its leaf should terminate the lip. A branch of an orange tree is then taken, of a diameter a little less than the stock; it is sharpened with a sloping cut, and is then introduced into the stock in the usual manner, and tied on with a woollen string. The plant is then placed under a glass frame, as a graft *a la Pontoise*, and the same care is bestowed

on it. When the union is certain, and the bud pushes forth, the stock is cut above the graft, and in a short time the marks of the wound disappear altogether. The superiority of the Faucheaux-graft over the Pontoise or English graft, is that it allows one to arrange the leaves and the eyes of the stock above the fruit of the graft which attracts the sap necessary for facilitating the union."*

Grafting of Pine Trees. — "In coming to Fontainebleau, I not only wanted to see my old friends and the gardens, but I was anxious to judge what progress had been made in the forest by the plantation of resinous evergreens, and to view the grafts, on a grand scale, of the laricio pine, executed on the sylvestris pinus, commenced by M. Larminat, the Conservator of the Forest, and continued by M. Bois-d'Hiver, his successor. It was in 1823 that M. Larminat conceived the happy idea of executing the grafting of these trees on a great scale, by means of the herbaceous graft, or Tshudy's, its inventor, or at least he who brought it into use, for this graft was already known in the sixteenth century, according to Francis of Neufchatel. The first sowing was a mixture of the pinus sylvestris, and the maritime-pine on the rock of Avon, which is nearest the palace. When the success of this experiment had been tried, many others were made, sometimes separately, and at others mixed together. The sowing is generally made by scattering the seed,† though nurseries are also established from which they can plant out. Some American pines are seen there, but it is rather as an object of experiment, than for the sake of multiplying them. According to the plan now pursued, the poetic and romantic situations of the forest of Fontainebleau will disappear under the dark and enduring masses of verdure which are springing up in every direction. Its rocks, which contain in their interior such crystals as can scarcely be found in any other part of the world, will soon disappear under the layer of vegetable earth, constantly produced by

* This graft, acknowledged to be the best, the easiest, and the most certain, is known in some establishments under the name of the triangular-graft. It is excellent for the Camellia, Rhododendron, Clethra, and Alasca.

† At first, the ground was cleared and prepared before they planted the pines; this method cost 225 francs (5*l.*) an acre, and about half was found to fail. Afterwards M. Larminat thought of a means of getting the seed sown for nothing in unencumbered places, and for a trifle in more difficult spots. The plan was this: the seed is flung on the heath, and the poor of Fontainebleau are then permitted to take away the heath, on condition that they tear it up by the roots.

the fall and decomposition of the leaves of the pine, which has already nearly concealed them by its dark and silent foliage. This is no hyberbolical picture. It is the simple, slow, gradual, but certain course of nature."

Elevation of the Ground in Pine Plantations. — "It is now about nineteen years since I carefully examined the first stock of pines grown in the forest. The pinus sylvestris were then but twenty or twentyfive feet high, and the matter formed by their fallen leaves had already filled up the cavities of the ground, and had formed, in several level places, a bed of undecomposed leaves of about six or eight inches thick. The leaves of the pine tree take a long time to decompose, on account of the resinous matter which they contain ; and I then foresaw, that the depth of this new soil would increase rapidly.*

"At present, these same pines have attained a height of from fortyfive to sixty feet, and are generally thicker than a man's body. The soil produced by the fall of their leaves is so much elevated, that several rocks, which appeared two feet out of the ground, are no longer visible ; and others, four or five feet high, are on the point of disappearing also under the fallen leaves. A moss, a sort of *hypnum*, has sprung up in several places on the leaves half decomposed, and contributes exceedingly to augment the thickness by its vigorous vegetation, and its prompt decomposition."

Resin. — "In 1822, M. de Lauriston, one of the ministers, brought two men from La Teste, who were resin makers by occupation, to try if the pines of Fontainebleau would yield resin by tapping, as we see it produced in the Landes,† near Bordeaux. These two men submitted to the operation, in two years, about 4000 feet of maritime pines, and obtained from them nearly as much resin as in the Landes, that is about an average of two pounds each tree. The details of this operation were hitherto unknown to the neighborhood of Paris, and I think it may not be uninteresting to relate a few particulars. Two men are equal to the task of tapping 8000

* I do not think that there is any tree which produces so much fresh soil by the fall and decomposition of its leaves, as the pine, particularly the maritime pine. I am not sure that this soil has yet been analysed, nor any experiments made to arrive at its properties when in cultivation. The vast quantity of resin which it contains ought to render it different from all other soils ; and it would be interesting to ascertain if plants of all sorts accommodated themselves to it, or if only certain ones.

† Sandy grounds, generally quite waste.

pines, which produce each year 32,000 bushels of matter, at 12 or 15 francs each. This is assuredly an excellent revenue, when it is considered that the pines which produce it grow in the sands, which refuse all sorts of cultivation, and many acres of which are sold for five or six francs. However, another calculation suggests itself — whether it would not be better to preserve the pines untouched, in order to obtain from them, by sawing, noble planks for general purposes. When operated on as related above, they are only fit for vine props, though these are certainly of first-rate quality. Resin is produced from the maritime pine, but from the pine sylvestris nothing has been obtained, even when they were four feet in circumference: perhaps they were still too young. The most curious part of this matter is, that the minister who commenced this experiment with so much eagerness, finished by paying no more attention to it, and by refusing M. Larminat the means of manipulating the raw produce which he had obtained. After many applications without an answer, M. Larminat received at last an order to forward all the resinous matter to the general gas depot at Paris; and six months after he had dispatched his last ton, he received another order enjoining him to take particular care of the resin, and to be sure and not allow the great heat (in 1825) to produce evaporation of the essential parts! We may conclude from this fact, and a hundred others, that when experiments are made, without having personal interest for a motive, they rarely succeed."

Superiority of the Pinus Sylvestris. — "Of the 28,000 acres which the forest of Fontainebleau contains, 25,000 are now covered with pines of different ages, and a million of plants could be taken from them without being missed. It is in the ancient plantations, now become forest timber, that the superiority of the pinus sylvestris appears over the maritime pine. This latter at first grows more quickly, but at present they are of the same height. The maritime pine sometimes appeared to me to have a larger trunk, but it scarcely gets higher, whilst the other pushes forward vigorously, and does not now appear to have arrived at more than half its elevation. It is always as straight as a taper, with a grey bark, but little indented. The maritime pine, on the contrary, is never perfectly straight, and its bark, much thicker and rougher, is of a darker grey. Hence nothing is more easy than to distinguish the trunks of the two trees by the bare inspection of the bark."

MASTS OF SHIPS. — "I said above, that M. Larminat began to graft, about ten years ago, the Laricio pine on the pinus sylvestris. I must add here that it was for the useful purpose of multiplying this precious tree for the benefit of the navy. His first attempts being crowned with full success, he has continued to execute a certain number of grafts every year. It is really a beautiful thing —a graft of the Laricio pine on the pinus sylvestris of ten or twelve years old : they grow with wonderful vigor, and excel in length and bulk all the pines of the same age, which have not been grafted. The expectations of M. Larminat will not be disappointed, and one day the forest of Fontainebleau will furnish to the navy masts of immense size. There is so much analogy between these two species that their graft never forms a swelling, when not interfered with. The point of union can only be known by the color and different roughness of their barks, which are clearly divided at the point of junction. There are now 15,000 of these grafts in the forest of Fontainebleau. I have only one more remark to make, and that is, that the Tshudy graft is executed here more simply than at first — it is no longer covered with paper to guard it from the sun and wind — it is simply tied with a flag, and a bit of grass, and it always succeeds perfectly."

Such are some of the extracts we have selected from this interesting excursion, and we think our readers will agree with us, that they give ample room for thought, and may suggest many useful experiments.—*London Horticultural Jour.*

ART. III.—*Monography of the Genus Camellia, or an Essay on its Culture, Description and Classification;* translated from the French, by HENRY A. S. DEARBORN.

(Continued from page 358.)

SECOND GAMUT.

BICOLORS.

FIRST DIVSION.

Ground yellowish carnation, striped with white, Nos. 1 and 2.

275. C. *Smctia vera.*—Leaves two and a half inches wide, and four long, ovate-oblong, acuminate, dentate, stiff, thick, or ranged in

the form of a parasol, obtuse, very much veined, with strong nerves, teeth of the borders very large and of rather a clear green; flower of a medium size, double, ground yellowish carnation, as in No. 2 of this gamut; petals arranged in three rows, veined vertically or rather sprinkled with orange-red, No. 3; the borders are white, some of them double, crenate at the summit; those of the centre small, not numerous, cut into narrow lines, erect, of the same color as the others, and intermixed with a few sterile stamens.—*Magnificent.*

SECOND GAMUT.

BICOLORED FLOWERS.

Ground clear or deep orange-red, striped or spotted with white.

SECOND DIVISION.

276. C. *Chandlerii striata.* See C. *Chandlerii.*

277. C. *Cuninghammi mutabilis.*—Leaves oval, broad, slightly acuminate, finely dentated; flower rather large, double, ground orange-red, No 7; petals arranged gracefully, imbricated, and of different sizes, deeply crenated at the summit, some of them marked with cross lines of pure white; a few stamens in the centre.—*Very pretty.*

278. C. *Imbricata tricolor.*—We possess two Camellias of this name, the first was received from Mr Knight, of London: It differs but little in its leaves from C. *Imbricata rubra*; its flower is handsomely imbricated, double and of a deep orange-red, spotted with white; in the centre are a few stamens.—*Very beautiful.*

The second is a variety, which was imported by Mr Siebold; its flower is semi-double, very handsomely formed, large, and shaded with several varieties of red and rose.—*Very beautiful.*

279. C. *Loukiana.*—Shrub vigorous, of an elegant port; flower very double, of a beautiful orange-red, No. 3; the petals of the centre, erect and curled, sometimes striped a little with white, which gives the flower a very agreeable form and appearance; occasionally the whole flower is spotted with white.—*Magnificent.*

280. C. *Master double red.*—Leaves somewhat large, ovate-obtuse, rolled under, others inclined towards the stock, strongly nerved of a deep green; bud of a medium size, scales calycinal, yellowish; flower large, double, of an orange-red, No. 4, sometimes also spotted with white.—*Very handsome.*

281. C. *Leana superba.*—Leaves two inches broad and three long, rounded, slightly acuminated, glabrous, of a glossy green; bud very large, oblong, with yellow calycinal scales; flower, more than three inches in diameter, double, of a deep orange-red, No. 3; petals from 30 to 35, 14 lines long; those of the circumference are red, some of them striped with white toward the middle, crenated or rounded at the summit; those of the centre are rose-color worked with white.—*Superb.*

282. C. *Warrata flammula.*—Leaves rather large, roundish oval, a little lanceolate, of a dull green; bud oblong, with yellowish scales; flower three and a half inches in diameter, deep orange-red No. 3; petals of the circumference 6 or 7, broad, crenated at the summit, border reflex; those of the interior are but petaloid stamens; bears seed.—*Pretty.*

EPILOGUE.

Here terminate our observations upon the genus Camellia. We have exerted ourselves to be clear and exact in this treatise, without being dry and tedious; it is from the suffrages of enlightened and consciencious horticulturists, that we are to learn whether we have succeeded. Having been solicited to undertake the labor, we owe it to ourselves to declare, that not any motive of speculation, or of self-love has guided our pen, but only a lively desire to be useful to the greatest number.

Finally, we ought to declare, that we regard this work, but as the base, upon which a more able hand, will be enabled to erect a more solid monument, and one more worthy the science of horticulture. The boldness of our enterprise, may, possibly, be disapproved or censured; but we accept, in advance all blame, if we have been sufficiently happy to render any service to horticulture, and shall be obliged to every Aristarchus, whose criticism may still more enlighten that public, for which we have written; for our device has been and will ever be:

The general interest beyond all others.

SYNOPTICAL TABLE.

Indicating the color of the Camellia, its name, the form of its flower, the species or variety from which it was produced, the place of its origin, and the period of its introduction into Europe.

The * designates the species from which all the varieties have been obtained.

UNICOLORED FLOWERS.

PURE WHITE.

Page 244.

Name of Camellia.	Form.	Species or variety.	Origin.	Introduction.
Alba simplex,	reg. single,	single red,	Europe,	England, 1812.
" plena,	reg. full,	unknown,	Japan,	do. 1792.
Amabilis,	reg. sing.	single red,	Europe,	do. 1825.
*Axillaris vera,	irreg. sing.	a species,	China,	do. 1820.
Anemone fl. alb.	irreg. full,	warrata,	Europe,	do. Chandler.
Do. warrata carnea,	irreg. full,	warrata,	do.	do.
Candidissima,	reg. full,	unknown,	Japan,	do. 1830.
Compacta,	irreg. dble.	pink,	Europe,	do. Teoting.
Corvatheæfolia,	reg. dble.	unknown,	do.	do. 1833.
*Euryoides,	reg. sing.	species,	China,	do. 1830.
Excelsa,	irreg. dble.	single white,	Europe,	do. 1830.
Fimbriata,	reg. full,	unknown,	Japan,	do. 1816.
Gallica alba,	irreg. dble.	pink,	Europe,	France, 1830.
Granelli,	irreg. dble.	warrata,	do.	Italy, 1834.
*Kissi,	reg. sing.	species,	China,	England, 1825.
Lacteola,	irreg. dble.	warrata,	Europe,	Italy, 1830.
Nivea,	ir. semi d.	unknown,	do.	Belgium,
Nobilissima,	irreg. full,	pink,	do.	do. 1834.
*Oleifera,	reg. sing.	species,	Cochin China,	England, 1810.
*Oleæfolia,	reg. sing.	species,	China,	do. 1810.
Palmeri alba, or Pomponias f.	reg. semi d.	pomponia,	Europe,	do. 1815.
Do. plena,	irreg. full.	unknown,	Japan,	do. 1810.
Rollissoni,	reg. dble.	pink,	Europe,	Italy, 1813.
*Sasanqua,	reg. sing.	species,	China,	England, 1810.
Splendidissima,	irreg. full,	variety plena,	Europe,	Paris, Abbe Berlese,
Weimaria,	reg. semi d.	unknown,	do.	England,
Welbanksiana, or Heptangularis,	irreg. dble.	pomponia,	China,	do. Wilbancks.

FIRST GAMUT.

UNICOLORED FLOWERS.

CLEAR ROSE.

(Page 249. — *Dominant color.* Lake mixed with more or less vermilion and Naples yellow, as in Nos. 2, 3, and 4, of the colored table.)

Name of Camellia.	Form.	Species or variety.	Origin.	Introduction.
Aitonia or Amplissima,	reg. single,	single red,	Europe,	Eng., Aiton.
Apollina,	irreg. full,	pink,	do.	France, Cachet, 1833.
Coloured,	reg. single,	single red,	do.	France.
Crouyoud,	reg. sem. d.	warrata,	do.	Belgium, 1834.
Dahliaflora,	irreg. s. d.	pink,	do.	England. Knight.
Expansa,	irreg. s. d.	do.	do.	England.
Fasciculata,	irreg. dou.	do.	do.	Italy, Milan.
Guessonia,	irreg. s. d.	single red,	do.	England.
Heterophylla,	irreg. d.	warrata,	do.	do.
Lindleya,	irreg. s. d.	single red,	do.	do. Lindley.
Pæoniæ flora rosea,	irreg. full,	unknown,	China,	do. 1810, Hampden.
Pink,	irreg. s. d.	single red,	Japan,	do. Middle, Miss Turner.
Perle des Cam.	irreg. f.	pomponia,	Europe,	do.
Pulcherrima or Roleni,	reg. doub.	aitonia,	do.	do.
Rosea plena,	irreg. d.	expansa,	do.	Germany.
Roseana,	irreg. full,	unknown,	do.	England.
Resplendens,	irreg. full,	unknown,	do.	do. 1833.
Sinensis rosea,	irreg. dou.	expansa,	do.	do. Vauxhall, Nursery.
Spectabilis,	irreg. dou.	pink,	do.	Paris, 1830.
*Sasanqua rosea,	irreg. full,	species,	China,	England, 1826, Capt. Rawes.
Theresiana,	irreg. full,	pink,	Europe,	Germany,
Venosa,	irreg. full,	do.	do.	do.
Virginica,	irreg. full,	single red,	do.	England.
Viltonia,	irreg. dou.	pink,	do.	Belgium.
Wilbrohamia,	irreg. dou.	single red,	do.	England.

FIRST GAMUT.

CLEAR CHERRY RED.

(Page 254. — *Dominant color.* Carmine lake, mixed with rose lake and vermilion, as in Nos. 1, 2, and 3, of the colored table.)

Name of Camellia.	Form.	Species or variety.	Origin.	Introduction.
Aucubæfolia,	reg. dou.	single red,	Europe,	England, 1818.
Amerstia,	reg. dou.	warrata,	do.	do.
Amœna,	reg. dou.	single red,	do.	Italy.

Augusta,	irreg dou.	corollina,	Europe,	England.
Alnntii superba,	irreg. dou.	single red,	do.	do. 1820 .
Buckliana,	reg. s. dou.	anemonæ flora,	do.	do.
Belle Rosalie,	irreg. dou.	pink,	do.	France.
Brocksiana,	reg. s d.	do.	do.	England.
Belle Henriette,	reg. dou.	expansa,	do.	France.
Berlesiana,	reg. dou.	coccinea,	do.	Paris, Abbe Berlese, 1831.
Blanda,	irreg. dou.	warrata,	do.	Belgium.
Boumanni,	reg. dou.	varieg. ple.	do.	Abbe Berlese.
Celsiana,	reg. sing.	single red,	do.	England.
Crassinervia or Crassifolia,	irreg. dou.	pink,	do	do.
Cliviana,	irreg. full,	papaveracea,	do	do. 1830.
Chamlerii,	reg. dou.	splendens,	do	do.
Conchiflora,	reg. dou.	expansa,	do	do.
Conchiflora nova,	irreg. s. d.	single red,	do	Milan.
Cramoisina Parmentieni,	reg. dou.	warrata,	do	Pamentier 1833.
Charles Auguste,	reg. s. d.	do	do	England.
Conchata,	irreg. dou.	pink,	do	Italy.
Colla,	reg. dou.	single red,	do	do.
Carolus,	reg. dou.	coccinea,	do	Germany.
Camtoniana,	reg. s. d.	pink,	do	England.
Decora,	reg. full,	coccinea,	do	do.
Dorsetti or Parthoniana,	irreg. full,	rubra plena,	do	England and Belgium.
Dianthiflora,	reg. sing.	warrata,	do	do. 1822.
Excelsiana,	reg. dou.	pink,	do	Belgium.
Exoniensis,	reg. dou.	varieg. plena.	do	England.
Elegans Chandlerii,	reg. full,	corollina,	do	England.
Elegantissima,	reg. full,	warrata,	do	do. Chandler.
Elegans,	reg. sing.	single red,	do	Belgium.
Emperor d'Autri,	reg. dou.	coccinea,	do	Abbe Berlese. 1833.
Florida,	reg. dou.	coccinea,	do	England.
Fascicularis,	reg. dou.	single red,	do	do.
Flaccida,	reg. simp.	single red,	do	Italy.
Fordii,	reg. dou.	unknown,	Japan,	England.
Fulgentissima,	irreg. dou.	pink,	Europe,	Belgium.
Formosa,	reg. dou.	rubra plena,	do	England.
Formosissima,	reg. full,	varieg. plena,	do	Belgium.
Fraserii,	reg. full,	unknown,	Japan,	England, 1834.
Gigantea,	reg. full,	rubra plena,	Europe,	do.
Grandiflora,	reg. sing.	single red,	do	do.
Gloriosa,	reg. dou.	warrata,	do	Belgium.
Hallesia,	irreg. dou.	single red,	do	England.
Hussevnssoni,	irreg. s. d.	coccinea,	do	do.
Hosackia,	irreg. s. d.	warrata,	America,	Floy.
Hibbertia,	irreg. s. d.	single red,	Europe,	England.
Herbertii,	irreg. s. d.	single red,	do	do.
Humboldtiana,	irreg. dou.	varieg. plena,	do	Germany.
Hybrida colorata,	irreg dou.	pink,	do	Netherlands.
Imbricata,	reg. full,	unknown,	China,	England, 1820.
Insignis alba,	reg. sing.	dianthiflora,	Europe,	England.
do. de Tat,	irreg s. d.	pink,	do	do.
do. rubra,	reg. sing.	anemonæflora,	do	do.
Iddebiana,	reg. dou.	unknown,	do	Belgium.
Knightii eximia,	irreg. s. d.	pink,	do	England.
Latifolia nova,	irreg. dou.	staminea sine,	do	do. 1830.

Lambertii,	reg. sing.	single red,	Europe,	Belgium.
Macrophylla,	reg. dou.	coccinea,	do	Italy.
Miss Rosa,	reg. s. d.	pink,	do	England.
Magniflora simp.,	reg. sing.	single red,	do	Milan, Casoritti.
Mutabilis,	reg. dou.	pink,	do	Paris, Tamponet.
Nannetenis,	reg. dou.	coccinea,	do	England.
New Imported,	reg. dou.	pink,	do	do.
Osburnea,	reg. sing.	warrata,	do	do.
Oxoniensis,	reg. dou.	rubra simp.,	do	do.
Ornata,	reg. dou.	coccinea,	do	do.
Percyæ,	reg. sing.	single red,	do	do.
Pencillata,	reg. s. d.	papaveracea,	do	Belgium.
Parthoniana,	irreg. full,	rubra plena,	do	do. Meens.
Preston-eclipse,	irreg. full,	pomponia,	do	England.
Paradoxa,	reg. sing.	single red,	do	do.
Pulchella,	reg. dou.	pink,	do	Belgium.
Pæoniæ flora rubra,	irreg. full,	unknown,	Japan,	England.
Parksii striped,	reg. dou,	coccinea,	Europe,	do.
Palmerii rubra,	reg. dou.	pink,	do	do.
Plumaria,	reg. sing.	dianthiflora,	do	do.
Reine des Pays-Bas.	irreg. s. d.	single red,	do	Belgium. Germany.
Radiata,	reg. full,	coccinea,	do	do.
Rosa sinensis,	reg. full,	pink,	do	Eng., Vauxhall, Nursery.
*Reticulata,	irreg. s. d.	species,	China,	Eng., Captain Rawes, 1824.
Rubricaulis,	reg. s. d.	single red,	Europe,	England.
Rosa punctata,	reg. dou.	aitonia,	do	do.
Rosæ flora,	reg. dou.	single red,	do	Belgium.
Scintillans,	irreg. dou.	pink,	do	England.
Sericea,	reg. dou.	unknown,	do	do.
Superba,	reg. dou.	single red,	do	Italy.
Staminea simpl.,	reg. sing.	single red,	do	England.
Sophiana,	reg. s. d.	single red,	do	Paris, 1834.
Spathulata,	reg. sing.	single red,	do	England.
Thunbergia,	reg. dou.	corallina,	do	do.
Triumphans,	reg. full,	pink,	do	do.
Venustissima,	irreg. s d.	warrata,	do	Germany.
Warrata striata,	reg. dou.	pink,	do	Belgium.
Woodsiana,	irreg s. d.	single red,	do	do.
Woodtii,	reg. full,	pomponia,	do	England.

FIRST GAMUT.

DEEP CHERRY RED.

(Page 294. — *Dominant color.* Carmine mixed with more or less vermilion, as in Nos. 4, 5, 6, and 7, of the colored table.)

Name of Camellia.	Form.	Species and variety.	Origin.	Introduction.
Alexandreana,	irreg. full,	warrata,	Europe,	Angers, Cachet, 1833.
Altheæflora,	irreg. dou.	rubra plena,	do	England.
Atroviolacea,	reg. sing.	single red,	do	do.

Anemone mutabilis,	reg. full,	corollina,	Europe,	England.
Anemone var. rosea,	irreg. full,	warrata,	do	England, Low.
Blackburniana,	reg. dou.	warrata,	do	England.
Braxelliensis,	reg. s. d.	single red,	do	Belgium.
Berlesiana fulgens,	reg. dou.	coccinea,	do	Abbe Berlese,
Concinna,	reg. full,	coccinea,	do	England.
Coccinea,	reg. dou.	single red,	do	do.
Clintonia,	reg. sing.	warrata,	America,	Floy, N. York.
Corollina,	reg. dou.	rubra plena,	Europe,	Eng., Chandler, 1819.
Dernii,	irreg. full,	single red,	do	England.
Dilecta,	reg. dou.	single red,	do	Germany.
Egertonia,	reg. dou.	rubricaulis,	do	England.
Elphinstonia,	reg. dou.	warrata,	do	do.
Flammea,	irreg. dou.	single red,	do	do.
Fulgida,	reg. sing.	single red,	do	do.
Fulgens,	reg. sing.	single red,	do	do.
Gloria Belgica,	reg. sing.	single red,	do	Belgium.
Heugmaniana,	reg. s. d.	single red,	do	England.
Hexangularis monstruosa,	reg. dou.	coccinea,	do	do.
Insignis purpurea,	reg. sing.	warrata,	do	do.
Knightii,	reg. sing.	warrata,	do	do.
Kermesina,	irreg. dou.	single red,	do	Germany.
Lindria,	irreg. s. d.	aitonia,	do	England.
Lucida,	reg. dou.	single red,	do	do.
Mme Adelaide,	reg. dou.	single red,	do	Paris, Tamponet.
Milleri,	irreg. dou.	double red,	do	England.
Minuta,	irreg. full,	aitonia,	do	do.
Myrtifolia,	reg full,	unknown,	Japan,	England, 1808.
do. Grandiflora,	reg. full,	unknown,	China,	Paris, Noisette.
Papaveracea,	reg. sing	single red,	Europe,	England.
Parksii vera,	irreg. full,	rubra plena,	do	do.
Præcellentissima,	reg. dou.	warrata,	do	Germany.
Pictorum coccinea,	reg. dou.	warrata,	do	Milan, Sacco.
Platipetala,	irreg full,	rubra plena,	do	England.
*Rubra simplex,	reg. sing.	species,	Japan,	do. 1739.
Rubra plena,	irreg. full,	rubra simplex,	do	Eng., in 1794, by Preston.
Rubra maxima,	irreg full,	do.	do	England.
Rossi,	irreg full,	do	Europe,	Germany.
Rex Bataviæ,	reg. dou.	rubricaulis,	do	Belgium.
Rawsiana or Roscii,	irreg full,	rubra plena,	do	Germany.
Rossiana superba,	irreg. s. d.	rubra simplex,	do	Italy.
Sanguinea,	reg sing.	do.	do	England.
Staminea plena,	irreg. full,	rubra plena,	do	Germany.
Superbissima,	reg. dou.	aitonia,	do	Milan, Sacco.
Sparmanniana,	reg dou.	spathulata,	do	England.
Splendens vera,	reg. full,	rubra plena,	do	Eng., Clapponi.
Speciosa vera,	reg. full,	do.	Japan,	Capt. Rawes.
Tamponeana,	reg. dou.	rubra simplex,	Europe,	Paris, Tamponet.
Warrata, or Ane.	reg. dou.	unknown,	do	England, 1816.

SECOND GAMUT.

CARNATION COLOR.

(Page 348. — *Dominant color.* Rose lake and cinnabar, as in Nos. 1, 2, of the colored table.)

Name of Camellia.	Form.	Species and variety.	Origin.	Introduction.
Albalutescens,	reg. dou.	pomp. s. f.	Europe,	England.
Incarnata,	reg. full,	unknown,	China,	Lady Hume, 1806.
Carnea,	reg. full,	do.	do	England, 1806.
Kewblusk,	reg. full,	do.	Europe,	England.

SECOND GAMUT.

ORANGE RED, MORE OR LESS DEEP.

(Page 349. — Lake mixed with red cinnabar, as in Nos. 1, 2, 3, 4, 5, 6, 7, and 8, of the the colored table.)

Name of Camellia	Form.	Species and variety.	Origin.	Introduction.
Anemone flora var. sinensis,	reg. full,	rubra plena,	Europe,	England.
Atrorubens,	irreg. full,	single red,	do	do.
Augusta rubra aurantiaca,	irreg. dou.	corallina,	do	do.
Chandlerii,	reg. full,	corallina,	do	Eng., Chandler, 1829
Cactiflora,	reg. dou.	pink,	do	Italy, Milan.
Conspicua,	reg. full,	corallina,	do	England.
China, (Tat.)	irreg. full,	rubra plena,	do	do.
China large,	irreg. full,	rubra plena,	do	do.
Derbiana vera,	reg. dou.	corallina,	do	do.
Eximia vera,	reg. full,	corallina,	do	do.
Incomparabilis,	reg. sing.	aitonia,	do	Germany.
Ignescens,	irreg. dou.	single red,	do	do.
Lauckmanni,	reg. sing.	single red,	do	Belgium.
Magniflora plena,	reg. full,	rubra plena,	do	Eng., Hamet of Claftham.
Punicæflora,	irreg. s. d.	warrata,	do	Angers, Cachet, 1828.
Parviflora,	reg. full,	rubricaulis,	do	do. do.
Palmeri purple warrata,	irreg. dou.	warrata,	do	do. do.
Reewesii,	irreg. dou.	coccinea,	do	do. do.
Revisa,	irreg. dou.	pæoniæflora,	do	do. do.
Rivinii,	irreg. dou.	coccinea,	do	do. do.
Rives nova,	irreg. full,	rubra plena,	do	do. do.

FIRST GAMUT.

GROUND WHITE, SPOTTED OR STRIPED WITH ROSE.

(Page 353.)

FIRST DIVISION.

Name of Camellia.	Form.	Species and variety.	Origin.	Introduction.
Bancksii,	irreg. full,	pomponia,	Europe,	England,
Dianthiflora striata plena,	irreg. dou.	pomponia,	do	Italy, Milan.
Delicatissima,	irreg. full,	pomp. simp.	do	England.
Elegantissima,	irreg. dou.	single red,	do	Germany.
Gloria mundi,	irreg. full,	pomponia,	do	Belgium.
Imperialis,	irreg. full,	pomponia,	do	Eng., Press.
Imbrica alba,	reg. full,	alba simplex,	do	England.
Punctata simp.,	reg. sing.	single red,	do	Eng., Press.
Picturata,	irreg. full,	pink,	do	do. do.
Regina Galliarum,	irreg. full,	pomponia pl.	do	do. do.
Sabina,	irreg. dou.	unknown,	do	Hor. Society, London.
Stryphosa,	reg. dou.	unknown,	do	Germany.
Spoffortiana,	irreg. full,	warrata,	do	England.
Victoria antwerpiensis,	irreg. dou.	pink,	do	Belgium.

FIRST GAMUT.

GROUND ROSE STRIPED OR WITH CHERRY RED.

(Page 355. — As in No. 1, of the colored table.)

SECOND DIVISION.

Name of Camellia.	Form.	Species and variety.	Origin.	Introduction.
Colvillii vera,	irreg. full,	pomponia s.	Europe,	England, 1829.
Gray Venus or Eclipse,	irreg. full,	pomponia s.	do	Eng., Press.
Punctata major,	irreg. dou.	unknown,	do	do. do.
Punctata plena,	irreg. full,	pomponia s.	do	do. do.
Rosa Mundi,	irreg. full,	do.	do	do. do.
Splendida,	irreg full,	do.	do	do. do.
Venusta,	irreg. full,	do.	do	do. do.

FIRST GAMUT.

GROUND CLEAR OR DEEP CHERRY RED, STRIPED WITH WHITE.

(Page 356.)

THIRD DIVISION.

Name of Camellia.	Form	Species or variety.	Origin.	Introduction.
Aglee	irreg. dou.	pink,	Europe,	France.
Adonidea,	irreg. full,	pomponia,	do	Belgium.

Cariopyhllæ flora,	reg. sing.	warrata,	Europe,	England.
Coronata rosea,	reg dou.	coccinea,	do	England, Low.
Cardinalis,	irreg. s. d.	variegata,	do	Belgium.
Donklæri,	reg. s d.	unknown,	Japan,	Siebold, 1833.
Fioniana,	irreg. dou.	variegata,	Europe,	Paris.
Melinetti,	irreg. dou.	pink,	do	Nantes, Melinet.
Marmorata,	irreg dou.	do.	do	Belgium.
Phillippi I., or Mexicana,	irreg. dou.	do	do	Milan, Sacco.
Variegata plena,	irreg. dou.	unknown,	Japan,	Eng., 1792, C. Conner.
do. Monstruosa,	irreg. dou.	do.	Europe,	England.
Versicolor,	irreg. dou.	pink,	do	do.

SECOND GAMUT.

BICOLORED FLOWERS.

GROUND YELLOWISH CARNATION STRIPED WITH WHITE.

(Page 375.)

FIRST DIVISION.

Name of Camellia.	Form.	Species or variety.	Origin.	Introduction.
Ochroleuca,	reg. dou.	unknown,	Japan,	Eng, Siebold, 1833.
Swetia vera,	reg do.	do.	Europe,	Eng., Swet.

SECOND GAMUT.

BICOLORED FLOWERS.

GROUND CLEAR OR DEEP ORANGE RED, STRIPED OR SPOTTED WITH WHITE.

(Page 376.)

SECOND DIVISION.

Name of Camellia.	Form.	Species or variety	Origin.	Introduction.
Chandlerii striata,	reg. full,	corallina,	Europe,	Eng., Chanl e r
Cuninghami,	irreg. dou.	rubricaulis,	do	do.
Imbricata tricolor,	irreg. s. d.	unknown,	Japan,	Siebold.
Laukiana,	irreg. full,	rubra simp.	Europe,	England.
Leana superba,	irreg. dou	unknown,	Japan,	Eng, Siebold.
Master double red,	irreg. dou	pink,	Europe,	England.
Warrata flammula,	irreg. s. d.	warrata,	do	France.

Art. IV. — *Massachusetts Horticultural Society's Annual Meeting.*

EXHIBITION OF FLOWERS.

"————Let one great day
To celebrated sports and *floral* play
Be set aside."

The annual exhibition of Flowers and Fruits by the Massachusetts Horticultural Society, took place at their Rooms, 23 Tremont Row, on *Wednesday*, *Thursday* and *Friday*, 19th, 20th, and 21st of September.

The specimens of Fruit (the particulars of which are herewith given by the Chairman of the Fruit Committee) were very fine, and exceeded, both in quantity and quality those of any former season.

Owing to the extreme heat of the weather, and the continued drought in July and August, Autumn's Queen, the gorgeous Dahlia, did not appear at the exhibition in all her glory. But notwithstanding the almost total failure of the Dahlia bloom, the floral part of the show was much better than our friends or ourselves anticipated. When it was made known to the cultivators, and to the lovers of flowers, that the place of the Dahlia must be filled up, by such cut flowers as could be procured, the disposition to contribute became general, and the supply was equal to our wants. Before the appointed hour had arrived to open the Rooms for the public, every vial, dish and basket, was filled, and all was in readiness for the inspection, and we trust gratification, of the lovers of Flora and Pomona.

The contributors will please accept our thanks and acknowledgments, for their liberal contributions, and their kind aid. If we have omitted, in our annexed statement, the name of any contributor, or an account of any specimens sent for exhibition, we solicit the favor of a communication giving us a list of the plants or flowers omitted, that they may be added to our report.

From the Hon. John Lowell of Roxbury.

Pandanus utilis, Eugenia myrtifolia, Araucaria excelsa, (rare and valuable.) This is a most superb plant. The inhabitants of Chili call this noble ornament of their forests *araucanos*. "This genus" Sweet observes "may be termed the handsomest genus of plants

with which we are acquainted." Bignonia discolor, Acrostichum alcicorne, Asplenium (?) Casaurina equisetifolia.

From J. P. Cushing, Esq. Watertown.

Astrapæa Wallichii, Epiphyllim Ackermanni, Maranta zebrina, Amaryllis Belladonna, (several pots in bloom,) Hippeastrums, (seedlings in bloom,) Erica glauca, Alpinia mutans, Rochea falcata, Trevirana coccinea, Phienia daclylifera, Mespilus (?) and a fine cut blossom of Crinum amabile.

From Marshall P. Wilder, Esq., of Hawthorn Grove, Dorchester.

Stanhopea quadricornis, (Air plant from South America in fine bloom.) "The true species of this genus," says Loudon, "are beyond comparison the most delightful productions of the vegetable world." This specimen was very beautiful, and was greatly admired. Maranta zebrina, Acacia, (four varieties,) Ardisia crenulata, Mannettia glabra, Erythrina Crista-galli, Nerine Fothergilli, &c.

From John Lemist, Esq. of Roxbury.

Citrus myrtifolia, (two plants,) Erica cruenta, (two plants,) Cycas revoluta, Ilex aureo-marginata, and a very splendid bouquet.

From Mrs Bigelow, of Medford, two very fine specimens of Cupressus stricta. These plants were placed at the entrance of the rooms and made a handsome appearance.

From John C. Gray, Esq.

Two very fine specimens of Cockscomb.

From the Botanic Garden Cambridge, by Mr W. E. Carter.

Ficus elastica, Ficus australis, Diosma ericoides, Taxus Chinensis, Strelitzia regina, Bigonia Evansiana, Laurus crassifolia, do. evaltata, do. indica, Banksia, Rhododendron arboreum, do. hybridum, Eugenia australis, Pelargonium, Erica Caffra, do. concinna, Erica empetroides, Myrtus flora pleno, do. narrow leaved, three seedling Camellia japonica, Metrosideros saligna, Eriobotrya japonica, Bauera rubiæfolia, Acacia divaricata, Magnolia grandiflora, Eucalyptus perfoliata, Ilex crassifolia, Myrtus mucronata, Melastoma nepalensis, Acacia (?) do. saligna, Hakea, Double flowering Myrtle, Acacia decipiens, Petunia hybrida, Fuschia grandiflora, Dantana Cammara, Melaleuca tenuifolia, Calothamnus pubescens, do. quadrifida, Menziesia globularis, Bouvardia coccinea, Beaufortea decussata.

From Messrs Winship, of Brighton.

Cassia sophoræ, Citrus nobilis minor, in fine fruit, Eugenia Australis, Agave Americana variegata, Sparmannia Africania, two

varieties of Cyclamen persicum, Vinea rosea, Aucuba japonica, Gloxinia speciosa, Eupatorium odoratum, Maranta zebrina, Erica gracilis, and spuria, Rallota purpurea, Merpilus japonica, Atriplex halimus, Asclepias persicifolia, Begonia argyrostigma, Ficus elasticus, Daphne variegata, Laurus, communis fol: variegata, Ruscus racemosus in fruit, Melaleuca diosmefolia.

From Mr H. Bowditch, Boston.

Fine specimens of Myrtles and Orange trees in fruit, Aloysia citriodora, Fuchsia, Erica, Acacia, &c.

From Messrs Hovey, Oxalis Boweii.

From Jno. Hovey, Roxbury, Yellow tea rose, Verbena melindre, Passiflora racemosa.

From Mr Mason of Charlestown.

Phylica ericoides, Acacia armata, and two other varieties, Verbena melindre, great variety of double ten week stocks, Viburnum tinus, three varieties of Erica, Rhododendron arboreum, Orange tree with fruit, and Diosma ericoides.

From Mr William Meller, Roxbury, four plants Citrus Decumana.

From Dr J. C. Howard, Woodland, Brookline, a fine specimen of Yucca and other plants.

From Thomas Lee, Esq. Brookline, several beautiful little plants in bloom and a great variety of cut flowers, Roses, &c.

From J. D. H. Williams, Esq. Roxbury, Taxus communis, Callistemum lanceolatum.

From Mr T. Rundle, Fig and Dwarf apple tree, both in fruit.

From Mr. John Arnold, Boston, Camellia japonica alba pleno, in fine bloom.

Dahlias.—From Col. Wilder, var. Suffolk Hero, Elphinstone's Diana, do. purple Perfection, Marquis of Northampton, Conqueror of Europe, Brown's quilled Perfection, &c.

From E. Breed, Esq. Charlestown, Widnall's Triumphant.

From Messrs Hovey, var. Mrs Rushton, Liberty, Juliet, Rival Yellow, Middlesex Rival, Conqueror of Europe, Rosa Superba, Ruby, Diadem of Flora, &c.

From Dr J. C. Howard, var. Prince George, Ophelia, Royal William, Countess of Liverpool, Dennisii, Beauty of Cambridge, Desdemona, Alba purpurea, Picta formosissima, Lady Fordwich, &c.

From Messrs Winship, var. Countess of Liverpool, Royal William,

Barrett's Susanna, Prince George of Cumberland, Dutchess of Buccleugh, &c.

From the Botanic Garden, Cambridge, by Mr W. E. Carter, Dennis's Perfection, Lord Liverpool, Dennisii, Countess of Liverpool, Prince George, Ophelia, Mrs Broadwood, Desdemona, Augusta, Picta formosissima.

From Mr Jno. Richardson, Dorchester, var. Lord Liverpool, Countess of Mansfield, Dennisii.

From W. Phipps, Esq. and W. Farnsworth Esq. of Roxbury, each a few fine flowers.

From Messrs O. and W. Wales of Dorchester, var. Red Rover, Lady Fordwich, Widnall's Perfection, Dennisii, and Dutchess of Buccleugh.

On the second and third days of exhibition, there was a basket of choice specimens handed to the committee, with a request that they should be placed in the stands incog. The request was complied with. All that we feel permitted to say in our report is, that the flowers were much admired; we classed them among the fairest of the *fair*.

By Samuel Walker of Roxbury, var. Napoleon, Desdemona, Dennisii, King of Dahlias, Metropolitan, Calypso, Widnall's Perfection, Mrs Broadwood, Dutchess of Buccleugh, Jackson's Rival Yellow, Lady Ann, Douglass Glory, Belledonna, Autro purpurea, Granta, Well's white, Harding's bride, Ophelia, Beauty of Cambridge, Urania, Barrett's Susanna, and Beauty of Bedford.

Bouquets.—From Mrs J. H. Gardner, of Roxbury; Dr J. C. Howard of Brookline; John Lemist, Esq. of Roxbury; W. E. Carter of Cambridge; Messrs Hovey, and S. Sweetser, Esq, of Cambridgeport; Messrs Winship, Brighton, W. Kenrick, Newton, and S. Walker.

A small bouquet, presented by Mrs E. Breed, of Charlestown, containing specimens of Stapelia pulchella, and Bignonia Evansiana, was much admired.

Cut flowers of various descriptions from T. Lee, Esq. Col. Wilder, E. Breed, Esq. Hon. E. Vose, Messrs Richardson, Phipps, Farnsworth, Gardener, Sweetser, Breck, Warren, Winship, Hovey & Co., Jno. Hovey, Mason, Meller, and Carter.

From Joseph Breck & Co., a superb collection of German Asters of every variety. Thirteen distinct varieties of Zinnia elegans, of

the following colors:—white, blush, pink, violet, light purple, dark purple, salmon, yellow, orange, light scarlet, dark scarlet, light crimson, and deep crimson. Specimens of Euphorbia variegata, Centauris of sorts; improved variegated, and other Marigolds, together with a great variety of other annuals, and cut flowers.

The wreaths were made and presented by Messrs D. Haggerston, J. W. Russell, and E. Sayers.

We shall close our report with a few brief remarks, and some quotations from various authors on the love, and use made of flowers by the inhabitants of several parts of the world.

"Flowers!" said Mr Bowring, "what a hundred associations the word brings to my mind! Of what countless songs, sweet and sacred, delicate and divine, are they the subject! A flower in England, [and we will add America,] is something to the botanist,—but only if it be rare; to the florist,—but only if it be beautiful: even the poet and the moralizer seldom bend down to its eloquent silence. The peasant never utters to it an ejaculation — the ploughman (all but one) carelessly tears it up with his share — no maiden thinks of wreathing it — no youth aspires to wear it: but in Spain ten to one but it becomes a minister of love, that it hears the voice of poetry, that it crowns the brow of beauty. Thus how sweetly an anonymous cancionero sings:

"Put on your brightest richest dress,
Wear all your gems, blest vale of ours!
My fair one comes in her loveliness,
She comes to gather flowers.

"Garland me wreaths, thou fertile vale;
Woods of green your coronets bring;
Pinks of red, and lilies pale,
Come with your fragrant offering.
Mingle your charms of hue and smell,
Which Flora wakes in her spring-tide hours!
My fair one comes across the dell,
She comes to gather flowers.

"Twilight of morn! from thy misty tower
Scatter the trembling pearls around,
Hang up thy gems on fruit and flower,
Bespangle the dewy ground!
Phœbus, rest on thy ruby wheels—
Look, and envy this world of ours;
For my fair one now descends the hills,
She comes to gather flowers.

"List! for the breeze on wings serene
Through the light foliage sails;
Hidden amidst the forest green
Warble the nightingales!
Hailing the glorious birth of day
With music's best, divinest powers,
Hither my fair one bends her way,
She comes to gather flowers."

It was, perhaps, the general power of sympathy upon the subject of plants, which caused them to be connected with some of the earliest events that history records. The mythologies of all nations are full of them; and in all times they have been associated with the soldiery, the government, and the arts. Thus the patriot was crowned with oak; the hero and the poet with bay; and beauty with the myrtle. Peace had her olive; Bacchus his ivy; and whole groves of oak-trees were thought to send out oracular voices in the winds. One of the most pleasing parts of state-splendor has been associated with flowers, as Shakspeare seems to have had in his mind when he wrote that beautiful line respecting the accomplished prince, Hamlet:

"The expectancy and rose of the fair state."

It was this that brought the gentle family of roses into such unnatural broils in the civil wars: and still the united countries of Great Britain have each a floral emblem; Scotland has her thistle, Ireland its shamrock, and England the rose. France under the Bourbons, had the golden lily.

The different festivals in England, have each their own peculiar plant or plants, to be used in their celebration; at Easter the willow as a substitute for the palm; at Christmas, the holly and the misletoe; on May-day every flower in bloom, but particularly the hawthorn or May-bush. In Persia they have a festival called the Feast of Roses, which lasts the whole time they are in bloom. Formerly, it was the custom, and still is in some parts of the country, to scatter flowers on the celebration of a wedding, a christening, or even of a funeral.

It was formerly the custom also, to carry garlands before the bier of a maiden, and to hang them and scatter flowers over her grave:

The Queen scattering flowers.

"Sweets to the sweet. Farewell!
I hoped thy bride-bed to have decked, sweet maid,
And not have strewed thy grave."

HAMLET, Act v. Scene 1.

In Tripoli, on the celebration of a wedding, the baskets of sweetmeats, &c. sent as wedding presents, are covered with flowers; and although it is well known that they frequently communicate the plague, the inhabitants will even prefer running the risk, when that dreadful disease is abroad, rather than lose the enjoyment they have in their love of flowers. When a woman in Tripoli dies, a large bouquet of fresh flowers, if they can be procured, if not, of artificial, is fastened at the head of her coffin. Upon the death of a Moorish lady of quality, every place is filled with fresh flowers and burning perfumes: at the head of the body is placed a large bouquet, of part artificial, and part natural, and richly ornamented with silver: and additions are continually made to it. The author who describes these customs also mentions a lady of high rank, who regularly attended the tomb of her daughter, who had been three years dead; she always kept it in repair, and, with the exception of the great mosque, it was one of the grandest in Tripoli. From the time of the young lady's death, the tomb had always been supplied with the most expensive flowers placed in beautiful vases; and, in addition to these, a great quantity of fresh Arabian Jessamines, threaded on thin slips of the palm leaf, were hung in festoons and tassels about this revered sepulchre. The mausoleum of the royal family, which is called the *Turbar*, is of the purest white marble, and is filled with an immense quantity of fresh flowers; most of the tombs being dressed with festoons of Arabian Jessamine and large bunches of variegated flowers, consisting of Orange, Myrtle, Red and White Roses, &c. They afford a perfume which those who are not habituated to such choice flowers can scarcely conceive. The tombs are mostly of white, a few inlaid with colored marble. A manuscript Bible, which was presented by a Jew to the Synagogue, was adorned with flowers; and silver vases filled with flowers were placed upon the ark which contained the sacred MS.*

The ancients used wreaths of flowers in their entertainments, not only for pleasure, but also from a notion that their odor prevented

* See Tully's Narrative of a Residence in Tripoli

the wine from intoxicating them; they used other perfumes on the same account. Beds of flowers are not merely fictitious. The Highlanders of Scotland commonly sleep on heath, which is said to make a delicious bed; and beds are, in Italy, often filled with the leaves of trees, instead of down or feathers. It is an old joke against the effeminate Sybarites, that one of them complaining he had not slept all night, and being asked the reason why, said that a rose-leaf had got folded under him.

In Naples, and in the vale of Cachemere (I have been told also that it sometimes occurs in Chester,) gardens are formed on the roofs of houses: "On a standing roof of wood is laid a covering of fine earth, which shelters the building from the great quantity of snow that falls in the winter season. This fence communicates an equal warmth in winter, as a refreshing coolness in summer, when the tops of the houses, which are planted with a variety of flowers, exhibit at a distance the spacious view of a beautiful chequered parterre." The famous hanging gardens of Babylon were on the enormous walls of that city.

A garden usually makes a part of every Paradise, even of Mahomet's, from which women are excluded, — women, whom gallantry has so associated with flowers, that we are told, in the Malay language, one word serves for both.* In Milton's Paradise, the occupation of Adam and Eve was to tend the flowers, to prune the luxuriant branches, and support the roses, heavy with beauty. Poets have taken pleasure in painting gardens in all the brilliancy of imagination. See the garden of Alcinous in Homer's Odyssey; those of Morgana, Alcina, and Armida, in the Italian poets: the gardens fair

> "Of Hesperus and his daughters three,
> Who sing about the golden tree;"

and Proserpina's garden, and the Bower of Bliss in Spenser's Fairie Queene. The very mention of their name seems to embower one in leaves and blossoms.

It is a matter of some taste to arrange a bouquet of flowers judiciously; even in language, we have a finer idea of colors, when such are placed together as look well together in substance. Do we read of white, purple, red and yellow flowers, they do not present to us

*See Lalla Rookh, page 303. Sixth edition.

so exquisite a picture, as if we read of yellow and purple, white and red. Their arrangement has been happily touched upon by some of our poets:

> ——————————"Th' Azores send
> Their jessamine; her jessamine, remote
> Caffraria: foreigners from many lands,
> They form one social shade, as if convened
> By magic summons of th' Orphean lyre.
> Yet just arrangement, rarely brought to pass
> But by a master's hand, disposing well
> The gay diversities of leaf and flower,
> Must lend its aid t' illustrate all their charms,
> And dress the regular, yet various scene.
> Plant behind plant aspiring, in the van
> The dwarfish; in the rear retired, but still
> Sublime above the rest, the statelier stand."
>
> COWPER.

What is here said on the subject of arrangement is of course addressed to those who are unacquainted with botany; those who study that delightful science will most probably, prefer a botanical arrangement, observing however to place the smaller plants of each division next the spectator, and thus proceeding gradually to the tallest and most distant; so that the several divisions will form strips irregular in their width.

A friend has obliged me, says a celebrated writer, with the following lines, paraphrased from the Greek of Meleager. "This delicious little Greek poem," says he, "is one of those which I always seem to scent the very odor of, as if I held a bunch of flowers to my face.

> "A flowery crown will I compose—
> I'll weave the crocus, weave the rose;
> I'll weave narcissus, newly wet,
> The hyacinth, and violet;
> And myrtle shall supply me green,
> And lilies laugh in light between:
> That the rich tendrils of my beauty's hair
> May burst into their crowning flowers, and light the painted air."

Per order,

S. WALKER,

Chairman of the Committee of Arrangements.

EXHIBITION OF FRUITS.

The exhibition of the fruits, of all kinds, far surpassed that of all former years, not only in the variety, but also in the increased proportion of the new and finest kinds which never yet have been seen or known at any former exhibition. Generally speaking, all the fruits which were on these days exhibited were fine. The fruits offered by Messrs. Manning and Ives, whose gardens are contiguous, occupied nearly the whole of the western table, and amongst these, especially of Mr Manning, were many of the new kinds of Pears, so lately introduced, and which are now fast coming into bearing. These above, constituted the finest selection of the kind, which has ever yet been witnessed in the country.

The following is the account of the exhibition :—

From the Hon. John Lowell, specimens of two varieties of Pears; one the Beurre Spence, which M. Van Mons had once designated as the finest pear he had ever raised; the specimen an oblong good sized fruit, contracted near the summit, of a yellow russety color, the flavor delicious. Also the Beurre Crappeaux, another variety sent to Mr Lowell by the Chevalier Parmentier, of Enghein; a fruit of medium size and turbinate form, bright scarlet next the sun and yellow in the shade, beurre and of delicious flavor.

From the Hon. Mr Vose, President of the Society :

Pears.—Williams' Bon Chretien, Andrews, Passe Colmar, Lewis, Napoleon, Duchesse D'Angouleme, Urbaniste, Brocaus Bergamotte, Julienne, Mouille Bouche.

Apples.—Hawthorndean, English Codlin, Large Red Sweeting.

Peaches.—Grosse Mignonne, George IV., Red and Yellow Rareripe.

Grapes.—Chasselas; and an ornamented basket of fruit.

Melons.—A fine large yellow variety of the Rock Melon from Paris.

Presented by S. Walker, from the garden of Madame Eustis, Roxbury, a fine specimen of Sweetwater *Grapes*, of out-door culture. Also a large basket of fine *Peaches*.

From J. L. Moffat, Esq. Roxbury, a basket of yellow Tomatoes.

From Enoch Bartlett, Esq. Vice President of the Society :

Pears.—Bartlett or Williams' Bon Chretien, Sylvanche Vert, Wertemberg, formerly received as Capiaumont, Dix.

Apples.—Ribston Pippin.

Lemon Peach.

From Mr Downer, a variety of fine fruits, as follows:

Pears.—Heathcot, Beurre d'Aremberg, Passe Colmar, Dix, Knight's Seedling, Bezi Vaet, Forelle, Iron, Lewis, Catillac, Beurre Diel, Roi de Wurtemburg, Williams' Bon Chretien, Andrews' Moorfowl Egg, and Wilkinson.

Apples.—Pumpkin Sweeting, Siberian Crab, Pomme d'api, Pound, Porter, Seaver Sweet, Hales, Lyscom, Nonesuch, Gardener's Sweeting, Spice and other varieties.

Grapes.—Isabella, Catawba, Miller's Burgundy, white Chasselas, and another variety, all from the open air.

Peaches.—Rareripe.

From Mr Richards, numerous fine specimens as follows:

Pears.—Howard.

Apples.—Ribstone Pippin, and Fall Sops of wine.

Peaches.—Two varieties, one a seedling.

From Messrs. Winship, of Brighton, beautiful specimens of the Shepardia Eleagnoides, consisting of branches loaded with fruit; the fruit fine for jellies and preserves, and highly grateful to the taste when ameliorated by frost.

From William Oliver, Esq. of Dorchester:

Pears.—Dix, Wurtemberg, Broca's Bergamotte, St. Ghislain, Duchess D'Angouleme.

Peaches.—President, Petite Mignonne.

Grapes.—Chasselas, very fine, open culture.

From Mrs Bourne, of Boston, Clingstone Peach.

From Mr John Arnold, of Milton:

Grapes.—Black Hamburg, two fine clusters, one weighing 2 3-4 lbs., and the other 3 3-4 lbs.; also fine clusters of the Muscat of Lunel

From Mr George Newhall, of Dorchester:

Pears.—Wurtemberg and Fulton, Williams' Bon Chretien, and Broca's Bergamotte.

Apples.—Porter and Pearmain.

Peaches.—Jacques' Rareripe, Moore's Rareripe, Yellow Red Rareripe, a seedling variety, also another large Yellow Seedling Rareripe, very fine.

From E. Breed, Esq. of Charlestown :

Pears.—Orange, Julienne, Seckel, Duchesse D'Angouleme, and Williams' Bon Chretien.

Plums.—Green Gage.

Grapes.—White, Muscat of Alexandria, and a basket containing fine peaches and a variety of other fruits.

From Mr Wm. Meller, of Roxbury :

Grapes.—Black Hamburgh, and Sweet Water.

Peaches.—Seedling varieties.

From Mr Joseph Balch, of Roxbury :

Pears.—Blanquette, Williams' Bon Chretien, and a variety from France.

Apples.—A variety from England.

Grapes.—A basket of Black Hamburg, and Black Prince, &c. all fine.

From Messrs. Mason, of the Charlestown Vineyard.

Grapes.—Purple Constantia, Lombardy, Black Hamburg, and White Chasselas. All affording ample evidence of the most skilful cultivation.

From Isaac P. Davis, Esq. of the city. A superb Black Apple, resembling polished ebony. A most beautiful fruit from the garden of Mr Cushing, at Belmont, from a dwarf tree received from France, and said to be of American origin, name unknown.

From Dr J. C. Howard, Woodland, in Brookline :

Pears.—Golden Beurre, Cambridge, St. Michael, Beurre Rouge, and Bergamotte.

Apples.—Maiden's Blush or Hawthorndean, Greening, and Ruddy Greening.

Grapes.—Miller's Burgundy, White Chasselas, and Black Hamburg, two splendid bunches of the latter on one lateral shoot, weighing together 5 lbs. and 4 oz.; also, from out of door culture, Sweetwater and Isabella.

Col. M. P. Wilder, sent for exhibition the following kinds of fruit :

Pears.—D'Aremberg, Belle et Bonne, Alpha, Gloux, Morceau, Buerre Thouin, St. Michael, Archangel, D'Amaulis, Beurre Von Marum, Bergamotte de Pasques, Bourgomestre of Boston, Passe Colmar, Sageret Easter Buerre, Heathcot, Wurtemberg, Beurre Diel, Bleecker's Meadow, a pear imported for Urbaniste, and a pear name

unknown from France. Fortune, a new and celebrated pear, but not yet at maturity. Also, Kenrick Pear from Van Mons, but may be wrong.

Plums.—Coe's Golden Drop. Also the Black Rock musk melon.

From Mr B. V. French, from his estate in Braintree, the following kinds:

Pears.—Cushing, Harvard, Wilkinson, Roman Beurre, Long Green, Saint Lezain, Old Winter, Roi de Wurtemberg, Williams' Bon Chretien, Tillington, Spanish Bon Chretien, King's Bon Chretien.

Apples.—Monstrous Pippin, Yellow Bellflower, Ortley Pippin, Mela Carla, Fameuse, Duke of Wellington, Hawthorndean, Fall Sopsavine, Garden Royal, Devonshire Quarendon, Porter, Dutch Codling, Garden Striped, Yellow Newton Pippin, Sweet Greening, Nonsuch, Sour Sweet, Black Apple, Courtpendu Plat, Well's Pippin, Royal do., Scarlet Nonpareil, English do., Danvers Sweet, Red Doctor, High top Sweeting, Esopus Spitzenberg, Green's Everlasting, Bun, Newark King, Snow, King of the Pipps, Fearn's Pippin, Conway, Osgood, Ribstone Pippin, Alexander, Vandavere, Jonathan, Surprise, Priestly, Moor's Red Winter, Cumberland Spice, Pumpkin Spice, Mela de Rosemarino, French Bellflower, Golden Reinett, Reinett de Autom, Templeton Winter Sweet, Russett, Long Nonsuch, Old Pearmain, Sidehill, Lady Finger, Greening, Lewis, French's Sweet, Seaver Sweet, York Russet, Downton Pippin, Pomme d'api, Siberian Crab, Murphy, Burraove, Virginia, Rock, Adam's Sweeting, Red Calville.

Melons.—Long Carolina Water, Pine, Green Flesh.

Plums.—Red Queen's Mother, a fine fruit.

From Mr Ebenezer Holden, of Dorchester: Porter Apples, a beautiful specimen.

From Dr. J. Greene, of Groton, the Foundling Apple, a fine looking large red fruit.

From Dr. Joel Burnett, of Southboro', specimens of Burnet Pear.

From William Kenrick, Duchesse D'Angouleme Pear.

From Mr John Rayner, Brown's Buerre, Broca's Bergamotte, and St. Michael Pears.

From Mr Haggerston:

Grapes.—Black Hamburg, &c. from the garden of Mr Cushing, at Belmont, specimens of the most perfect cultivation.

From Dr. Z. B. Adams, from his garden in Pearl street: Fine specimens of the old St. Michael which is still generally fine in cities. Also Seckel.

From Mr Richard Ward, of Roxbury:

Pears.—Seckel, Williams' Bon Chretien or Bartlett, Andrews, Pondlilly, Wurtemberg, and Bergamotte.

Peaches.—Old Mixón, Red Rareripe, Sweetwater, Yellow Rareripe, White do., Cooledge's Favorite, Jacques, Franklin Seedling.

From Mr A. D. Williams:

Pears.—Williams' Bon Chretien, Summer Thorn, Harvard; also a seedling Pear, small, turbinate in form, and handsome, fine scarlet next the sun.

Apples.—Fall Sopsavine, Porter, and Horn Apple, a large red beautiful fruit.

Grapes.—Several very large and beautiful clusters of Black Hamburgh.

From Mr Sweetser, of Cambridgeport:

Pears.—Fulton, Andrews, Chelmsford, Julienne, Seckel, and Williams' Bon Chretien.

From Mr John Barnard, of Dorchester, a Pear of a new variety.

From Mr Eames of Framingham, specimens of an Apple from Detroit, a large, splendid red fruit.

From Mr Rufus Howe, of Dorchester, Urbaniste Pears.

From Mr Joshua Gardner, Dorchester:

Pears.—Cushing.

Apples.—Gravenstein, and Pomme D'Api, or Lady Apple, beautiful specimen.

From Mr George Brown, Beverly:

Pears.—A variety without name from France, said to be fine; a variety from Holland, a winter fruit, Seckel, and Brown Beurre.

Apples.—A large fine Sweeting, a superior fruit, Pomme D'Api, and the Drap D'Or of France.

From Mr J. Hovey, a basket of Grapes of out door cultivation.

From C. F. W. of Charlestown, Isabella Grapes.

From Mr Alexander McLennan, from Oaklands, in Watertown, Pomme D'Api and a variety of fine Peaches, &c.

From Mr Charles Johnson, of Weston, and from the farm formerly owned by Capt. John Mackay, of the city; Hawthorndean Apples, very beautiful.

From Mrs T. Bigelow of Medford:

Apples.—Monstrous Pippin, and beautiful specimens of Red Apples from France.

Peaches.—Some fine specimens.

Grapes.—Fine Chasselas, and Black Hamburg.

Shaddocks.—Very large, from her green-house, a variety of the *citrus* or orange tribe.

From the garden of Mr Lemist, of Roxbury, fine Black Hamburg Grapes; also a tree of the Lime in fruit.

From Mr Samuel Pond, from his garden at Cambridgeport.

Pears. — Beurre Diel, Cushing, Wurtemberg, and Andrews.

Plums. — White Gage, and a variety supposed to be Hulings superb, Corse's Field Marshal, Blue Imperatrice, a fine fruit which sometimes has been called Semiana; also Duane's Purple Plum. All the Plums exhibited by Mr Pond were exceedingly fine; and Duane's Purple was very large and superb. Mr Pond has been very successful with Plums, having raised large quantities of this fine fruit during the past season. His situation is highly protected, the soil low, flat, moist, and but recently reclaimed from a salt marsh. Though very bad, and not at all suited to the Peach, it proves fine for the Plum.

From L. Baldwin, Esq., of Brighton.

Apples. — Specimens of very large Red, of fine appearance.

From Mr John Hill of West Cambridge, Lemon Rareripe, so called, a synonyme of Yellow Red Rareripe, the specimens very superb. This is one of the finest of all Peaches.

From Mr J. L. L. F. Warren, from his garden at Brighton, an ornamented basket of fruit as follows.

Pears. — Seckel.

Apples. — Baldwin, Greening, Autumn superb, Porter, Lady apple, Siberian Crab.

Peaches. — Royal George, George IV., Melacaton, Royal Kensington, Warren's Favorite.

Plums. — Damson.

Melons. — Cantaloupe, and Green Citron.

Grapes. — Chasselas, Black Hamburg, Purple, Malaga, and Isabella.

Mr Coolidge, from his garden in Cambridge street, Boston.

Plums. — A fine looking yellow, oblong, and excellent fruit.

[To be concluded.]

THE

HORTICULTURAL REGISTER,

AND

GARDENER'S MAGAZINE.

NOVEMBER 1, 1838.

Art. I.—*Practical Hints on Planting Fruit Trees.*

The planting of fruit trees requires more practical knowledge and particular attention than is generally apprehended by the inexperienced cultivator: for from a mismanagement in planting may be traced, in many cases, not only a lingering and unfruitful growth of the tree, but, in many cases, little effort in vegetation after planting and a certain death of the tree in a few years. This defect may be traced, in many cases, to improperly planting too deep, which, in my practice, I have found a universal error in fruit trees in small city gardens, and other places, when the thing has been done by inexperienced hands. Planting too deep is more particularly exemplified in the apple, the cherry, and those kinds of trees whose roots naturally grow near the earth's surface: — deep planting places such roots in a location where they cannot receive their wonted stimulants, as the influence of the *sun*, *air*, and the like; and the food that is conveyed to them, under such circumstances, is in a *crude*, *acid* state, and destitute of those fertilizing qualities it acquired nearer the earth's surface. This consequence will always happen to trees planted too deep, as the cherry, apple, and indeed all kinds that do not *strike* roots from the main stem, as the willow, button-ball, and many kinds of forest trees, and shrubs, which, when planted too deep, lose their original roots, and replace them from the stem near the earth's surface. In contrarity to the above a mismanagement often happens in the planting of trees, by their roots being planted too shallow, in which case the drought effects

their *fibrous* roots, and they cannot cling to, and draw nutriment from, the soil; they are, therefore, eventually dried up, and the following season the main roots have to protrude new *fibres* to draw nutriment from the soil.

The *true* system for planting trees is to follow their natural depth and location as much as possible, which can easily be obtained by examining the depth and natural position of the roots before its removal.

From the many authors I have perused I have not read any satisfactory description of a "method of planting fruit trees. They all very correctly agree, that the hole intended for the tree should be dug larger than the circumference of its roots, in order to give them a free expansion without cramping them in the hole, which is often the case of inexperienced hands. The next consistent thing agreed upon is the breaking up, mixing and pulverizing the bottom of the hole, so that the under tier of roots may strike freely and quickly be established in the soil: after this preparation, the planting is recommended to be done, by placing the tree in the centre of the hole, filling it up about half way and then gently shaking it upwards in order to draw the roots in their proper position, and treading close the fine earth to them. This method I cannot admit to be correct either in theory or practice; for in most cases the roots must certainly be forced out of their natural position; in the first place, by pressing the upper tier of fibrous roots to the bottom of the hole with the earth and treading, which should, according to their natural position, be placed near the earth's surface. In the second place, the roots are drawn *up* and pressed *down* by the shaking of the tree, and, instead of their laying in a regular expanded horizontal manner, if examined, will be found to be bent in an irregular manner: the over treading also displaces the roots, and the consequence is, that many of the best fibrous roots being partly injured and out of their natural position either die or have to make new roots from their leaders in order to draw a proper nourishment to support the tree. Hence many fruit trees, after planting, remain for several years in an almost dormant state, when *fruit-buds* are formed instead of *wood-buds*, which, if allowed to flower and bear fruit, will dwarf the tree in a manner that it never assumes the size and habit it would acquire if properly planted at first.

In the practice of planting fruit trees, the operator should

make himself well acquainted with the natural growth and habit of both the roots and branches of the tree; for it will be found that different kinds of trees have quite a contrary natural position of their roots; for instance, as before stated, the cherry and apple tree roots near the surface of the soil, whilst the pear perforates much deeper into the sub-soil. All these positions should be carefully examined and understood before planting, for it is in vain to reverse the position of roots to any good purpose; indeed when it is done it is an act of violence imposed on nature and its ill effects will soon be discovered in the tree.

In the practice of planting, I recommend that the natural position of the roots of the tree be examined, the hole dug wider than their circumference, the bottom of it well broken up, &c., the tree placed in the centre, and the bottom tier of roots placed in an expanded manner, then apply some fine earth over them as a covering, being careful that no cavity is left under the *bole* of the tree; after this layer of roots is properly placed and covered, then prepare to lay the upper tier in their natural expanded position, being careful not to cramp or bend them, but let their fibres be fully extended; this done, fill up the hole with well pulverized earth a little above the surface, and rather highest near the stem of the tree; the surface may then be gently trod and the work is done.

That the tree should be supported by stakes, the ground kept in good order, &c., are too well known to require any comment, only that they should be strictly attended to.

E. S.

ART. II.—*Manning's Book of Fruits.*

The following notice of Manning's Book of Fruits, from the pen of J. J. T. an able writer in the Genesee Farmer, we give to our readers, presuming it will be read with interest, by all who are engaged in Horticulture.

THIS work should be in the hands of every cultivator of good fruit in the northern States, and especially of nurserymen. Its title, "*A Descriptive Catalogue of the most valuable varieties of the Pear, Apple, Peach, Plum, and Cherry, for New England culture,*" will explain its character. It is a small duodecimo volume, of 118

pages, containing a few pages of excellent prefatory remarks on the proving of fruits, but chiefly occupied with short descriptions of such as the author has himself tried and found worthy of culture.

It also contains 32 pages on the cultivation of fruits, including the currant, gooseberry, raspberry, strawberry and grape, by John M. Ives.—The catalogue contains 50 varieties of the apple, 81 of the pear, including a large number of the new Flemish varieties, 15 of the peach, 20 of the plum, and 14 of the cherry; besides a very short catalogue of hardy ornamental trees and shrubs, adapted to cultivation at Salem, the residence of the author. It also contains well executed lithographic figures of Williams' Bon Chretien pear, the Easter Beurre, Coe's Golden Drop plum, and the Black Tartarian cherry.

The great merit of this work is that the information it contains is not second hand, but is without exception the result of the personal observation and experiment of the author. No specimen is described but such as has been actually identified by him; no synonims are quoted, and the authority of preceding authors no farther referred to, than to adopt the names in the Catalogue of the London Horticultural Society, "the most complete work on this subject," as the author observes, hitherto offered to the public." We are, however, much disappointed in one particular. The descriptions are generally too short and imperfect to be of much practical utility. The book, it is true, is all it professes to be,—a Descriptive Catalogue; but we had hoped, from the unequalled means which the author possesses of furnishing full descriptions of so many proved varieties, that we should have been furnished with a work, so much needed at the present time, containing full and accurate descriptions of the *distinctive characters* of fruits. A statement of the *quality* of the fruit described, would, in several instances, have been an improvement. The great imperfections of works of this kind, now existing, and especially those of American origin, which with the exception of descriptions copied from European authors, are exceedingly meagre, or at best contain statements of *general*, not *distinctive* characters, renders such a work exceedingly desirable. The only one which we have seen, which at all approximates to such a production, is Floy's edition of Lindley, but that is but imperfectly adapted to the United States. The qualification of the author of the Book of Fruits for furnishing so desirable a work, will be un-

derstood when it is known that for fourteen years he has made the cultivation and proving of varieties of fruit, his unremitting study and pursuit; that he has identified more varieties than any other person in America, and more probably than at any establishment in Europe, except those of the London Horticultural Society and of Professor Van Mons, and that he has obtained the best fruits cultivated in these two celebrated establishments. The following extracts will show the course pursued, and the extent and accuracy of the experiments:

"The Pomological Garden was commenced in 1823, with the design of forming a large collection of specimen trees of such varieties of foreign and native fruits as were hardy enough to endure the inclemency of a northern winter. After a strict examination of the produce of these trees, carefully comparing the wood, the leaf, and the fruit, with the figures and descriptions in the most popular works on Pomology, it was intended to select, for permanent cultivation, those varieties which were at once fitted for the climate of New England, and of high merit in themselves. In furtherance of this purpose, we have assiduously culled from American catalogues, all that we judged worthy of trial, and imported from the first European establishments, the fruits most in repute with the writers of their respective countries. We have never limited ourselves to one specimen, but have in every instance, procured trees of each name from many different sources, in order the more surely to arrive at correct conclusions respecting their identity, as well as to multiply our means of estimating their comparative value."

With regard to the results of these experiments, now published in the present work, the author says:

"With the exception of Peaches, we recommend no fruit that will not ripen in any part of New England or New York, and in the southern part of Canada. Our selections have been made from nearly four hundred kinds, which we have raised yearly. Experience has taught us that many fruits, highly extolled by European writers, and doubtless of great excellence in their native soil, either perish or degenerate in our colder regions; and of these and all others which we have found improper in any respect for cultivation, we design hereafter to publish a catalogue."

"We do not claim for all the varieties herein enumerated, the distinction of first rate fruits; some are second rate, admitted in

consideration of their size, beauty, and abundant bearing, though their flavor is not the most delicious. The essential characteristics of a first rate tree are, health, vigor and fertility; those of a first rate fruit are magnitude of size, beauty of shape and color, and richness of flavor. But a small number of fruits, uniting all these qualities, is known to horticultural science throughout the world. Besides, in regard to the taste of a fruit, the judgment of individuals greatly varies; what one person would pronounce exquisite, might to another seem merely tolerable. In commendation, however, of the kinds described in this manual, we confidently declare our conviction, that no possessor of any or all of them would willingly relinquish their culture for the purpose of regrafting his trees with any other varieties."

The pleasure, which the collection and cultivation of valuable kinds, and more especially the propagation of new varieties, would afford persons of leisure and taste, has been too frequently overlooked. The following remarks, in recommendation of this pursuit, are well worthy of notice, though it is an error to suppose it more noble than the study of Natural History, which lies at the very foundation of Horticultural science:

"To a young man, with the advantage of fortune, and a familiarity with modern languages, researches of this nature would open an inexhaustible source of enjoyment. He could scarcely be more honorably or usefully occupied than in collecting and identifying fruits, and introducing them to the notice of his countrymen; nor better rewarded than in witnessing his anticipations, from year to year, continually realized and continually renewed. The same ardor which characterizes the collectors of shells, birds, and insects, would produce, in Horticulture, far more desirable and more noble results.

"A division of the pursuit, so that the attention of one person could be exclusively directed to one species of fruit, would probably greatly facilitate the progress of investigation, and lead to many satisfactory conclusions respecting the varieties most worthy of cultivation. If France has produced her Duhamel, Belgium her Van Mons, and England her Thompson, is it unreasonable to seek among gentlemen of leisure and education in the United States for one, who following in the footsteps of these illustrious men, with the advantage of the light derived from their researches, shall com-

pensate for the long delay of the Experimental Garden, promised by our own Horticultural Society."

In common with other cultivators, our author has been seriously annoyed and retarded in his researches by the depredations of the birds, especially as it regards the cherry. "The last season," says he, "we had but few perfect specimens, except the Bigarreau. We expected to prove and bring into notice many new and valuable sorts, and our disappointment may be imagined at finding ourselves in every instance anticipated by these innocent depredators." We quote this chiefly for the purpose of suggesting, what we are confident would prove an effectual remedy for this evil, that is, the employment of *nets* to cover the tree during the season of ripe fruit. In this case, the exterior branches only could be reached. The expense of suitable nets for several trees, oiled or varnished for their preservation, would at most be only a few dollars, and if trees ripen successively, but few would be wanted at a time. Select varieties could at least be thus protected.

In allusion to these depredators, however, he has the following very just remarks. The fact relative to the usefulness of the Cedar bird, will be new to most readers, and if not sufficient to entitle it to protection, should certainly receive attention, and not be lost sight of in horticultural economy :

"In speaking as we have, of the annoyances sustained from birds, we are still fully pursuaded that these plunderers, as they are sometimes called, more then compensate for their occasional inroads upon our orchards by their services in the spring, and also during their incubation, in destroying insects. *We too often, perhaps, notice the former, while the latter are remote, or not obtrusive.*

"In early spring and during the breeding season, we see them every minute of the day in continual progress, flying from the nest for a supply, and returning on rapid wing with a grub, a caterpillar, or a small reptile. The numbers captured by them in the course of these travels, are incredibly numerous, keeping under the increase of these races. We have seen the Ampelis, or Cherry bird, that remarkably silent and dove-like [?] species, in great numbers early in spring, and also during the time of nidification upon our apple trees, when the canker worm was about half grown, destroying them in great numbers. It is also known to every observer of nature, how extremely fond our common and familiar robin is of grubs,

those insidious enemies to our garden crops, as well as the slimy slug, which often infest our young pear trees; and any individual who may have had the robin as a cage bird, is aware of the quantities of insects, or worms, he will devour in a day; and when we take into view the circumstance of these birds having usually two broods in a season, of four each, it will give us at least some idea of the quantity of this peculiar food required for at least four months in each year. And although called plunderers, they are in fact benefactors likewise, seeming to be appointed by nature as agents for keeping under the increase of these races. Nearly all our hard-billed or granivorous birds, are in the spring and early part of our summer decidedly insectivorous. 'Public economy and utility,' says one, 'no less than humanity, plead for the protection of the feathered race; and the wanton destruction of birds, so useful, beautiful and amusing, if not treated as such by the law, ought to be considered as a crime by every moral, feeling and reflecting mind!"

While there is much to commend in this volume, we notice a very few defects. Among those which are trifling, is the orthography of the name *Seckel*, which is here corrupted into "*Seckle*." The former mode of spelling, is as well established at Philadelphia, where this variety of the pear originated, as that of any other family name. That superlative fruit, the *Swaar*, is thus faintly commended: "This is a large apple, the form round, somewhat flat, the skin is very smooth, of a light yellowish green, without any red; the flesh is juicy and well flavored, but not rich."* In a list of *fiftyone* varieties of the apple, there are but *five* described as *sweet*, three of which are winter apples; as this description of fruit is not only desirable at all times for ordinary use, but is becoming exceedingly valuable for feeding farm stock, a greater number, more especially those ripening in summer and autumn, would be important.

But that which we particularly object to in this volume, is the error, frequently alluded to, and evidently adopted by the author, of the degeneracy of varieties by old age. This opinion so strenuously advocated by the late President Knight, seems to have had its origin in the decline of some varieties in ungenial situations. In opposition to this theory may be adduced the opinion of the most distinguished phytologists of the age, among whom are Mirbel, De

* With us, this fine fruit often has a rough skin, inclining to russet near the stem; and is commonly of a rich, yellow color when fully ripe.

Candole, Lindley, and Nuttall, who in common with others, consider the buds of each tree as containing within themselves, all the rudiments of so many distinct vegetables, which may be transferred by ingrafting, and thus form many distinct individuals, each again subject without limit, to produce additional ones; the trunk of the tree thus sustains a race of successive annual plants, itself gradually passing from living to dead matter. Thus, as it is merely the support of those buds, "to say," says Nuttall, "that these partake of the age and accidents of the trunk on which they were evolved, is improbable if not impossible, as they can in fact be influenced only by the stock to which they are last transferred."

But we need not refer to theory in disproof of this opinion; facts abundantly show its fallacy. The propensity is always strong to draw general conclusions from limited observation; and those identical varieties which Knight referred to as in a state of decline, in proof of his theory, were in other and more genial situations, perfectly healty and retaining all their original excellence. "The Golden Pippin," says Lindley, "one of the most celebrated and esteemed apples of this, or perhaps any other country, has been considered by some of our modern writers on Pomology to be in a state of decay, its fruit of inferior quality in comparison to that of former times, and its existence near its termination. I cannot for a moment agree with such an opinion, because we have facts annually before our eyes, completely at variance with such an assertion. Any person visiting Covent Garden or the Borough markets during the fruit season, and indeed any other large market in the southern or midland counties of England, will find specimens of fruit as perfect and as fine as any which have been either figured or described by any writer whatever, either in this or any other country." The Virgalieu pear, (White Doyenne,) which, in the neighborhood of Boston, is considered as deteriorated, so as to be not worth cultivating, is, in Western New York, one of the finest and most delicious fruits, and shows no symptoms of decay. Coxe, though adopting this erroneous opinion, gives faithfully the following *facts* in opposition to his own theory. "The Styre apple of Hereford, in England, is supposed to have long since passed the zenith of its perfection, and to be rapidly declining there; yet in the growth and vigor of at least one hundred of these trees planted in my orchard, there appears to be no deficiency; on the contrary, they attract the notice of all who

see them, for the extraordinary luxuriance as well as beauty of their growth." Again, "The climate of America is supposed to have revived the Red-streak, which had deteriorated in its native soil from the long duration of the variety." Old age is *incurable*, therefore the decline of those fruits must be referred to other causes. One of these is clearly pointed out in the following extract from Lindley. The English Codlin, which he notices "with the view of directing the attention of the orchardist to it as an old and valued apple," is thus spoken of:—"The customary method, for at least one hundred and fifty years, has been to raise the trees from suckers and truncheons, as they are called; and in every old garden where they are found, they are diminutive, ill-formed, unproductive, and full of disease, incrusted, as it were, root and branch, with the greatest of all pests, the *aphis lanigera*, in consequence of which its fruit exhibits scarcely any of its original character. Healthy, robust, and substantial trees, are only to be obtained by grafting on stocks of the real Crab; they then grow freely, erect, and form very handsome heads, yielding fruit as superior to those of our old orchards, as the old and at present deteriorated Codlin is to the Crab itself."

The comparatively short life of the peach tree is well known; yet some of our finest varieties are known to be centuries old, and to show no symptoms of decline. In addition to this, there are many of the apple and pear, now cultivated as fine, which have been known from time immemorial.

We have noticed this error, because when adopted it tends to lead to erroneous practices. It was this which induced President Knight to estimate grafted trees unworthy of his care, unless the original seedling was known to be in a healthy condition, and it has led others in this country to ascribe to this supposed debility of old age, the diseases known as *fire-blight* in pear trees, and the *yellows* in the peach trees.

Before concluding our remarks on this volume, it is proper that we should take some notice of the treatise on the *culture* of fruits, which occupies 32 pages, and which was written by John M. Ives. This contains much useful and judicious matter, and some defects. Among the important facts, we notice the following:

"We are of opinion, from the use which we have made of the sea marl or muscle bed, that it is on the whole the best manure, either for top dressing or shallow ploughing, of any substance in use among us, particularly when applied to light soils."—p. 14.

This, of course, is precisely similar in nature and operation to old or slacked lime and to the marl beds of our swamps and marshes. As fruit trees are subject to the same laws of growth as field crops, and are equally benefitted by a fertile soil, the use of lime in their cultivation is a subject of importance, and should receive more practical attention.

The remarks on transplanting contain some excellent hints and cautions:

"In the removal of trees, care is necessary to obtain as much of the roots as possible, and in re-setting, that none are doubled back and distorted. Cutting off *smoothly* the end of each root that may be [have been] broken or cut by the spade, is indispensible, and all fibrous roots that are injured should also be cut *close* to the root upon which they are attached; the root or stem should be pressed close down to the soil, so as to place the roots in a horizontal direction, and all of them drawn out straight like a fan, or rays verging from a centre to a semicircle, and the soil thrown evenly over; the tree should not be shaken after the earth is placed upon the roots, as is too generally practiced; for when a tree is thus raised up, the small roots or fibres will be drawn out of their places, and when the stem is thrust down again, the roots being too weak to force their way back into the soil, will be doubled up, which often causes knobs, and throws out suckers; neither will the earth require to be trodden down *hard*, but gently; or if it be a dry or loose loamy soil, setting in *puddle*, which is to water as you set it; — this last method is undoubtedly the best, when an individual has time to attend to it, — it is a slower process. Copious watering *after a tree is set*, is often very prejudicial, by washing the soil from the roots."—p. 18.

The following explanation of the cause of sterility and of fruitfulness in young pear trees, will probably be new to some of our readers:

"Pear trees bear their fruit on short buds or spurs of one, two, three or more years' growth, from the strongest branches; and the same spurs will continue to produce fruit for a great length of time; but they do not often produce fruit until they have a surface of branches very large in proportion to the sap supplied by the roots. Thus we find that when pear trees are planted in a deep, rich soil, they grow rapidly, and therefore require a number of years to bring them to a bearing state; on the contrary, when growing in a light

or dry, shallow soil, they collect but a small quantity of sap, and require but a confined surface which is produced in a short time, and they are consequently brought to a bearing state in a few years."—p. 19.

Grafting the pear upon the quince, which is adopted for obtaining dwarfs, has been found very advantageous in promoting fruitfulness, in causing early bearing, and also in producing larger and finer fruit in some varieties. A great objection has, however, been found in the depredations of the borer which so frequently destroys the quince, but rarely, if ever the pear. To remedy this, pear stocks have been first grafted with the quince, and these again with the pear, thus inserting a portion of quince wood into the trunk of the pear, which produces the same result as before. But the following method we consider as a superior one:

"The quince stock should be budded *at* or *below* the surface of the ground, when the bark will separate *entirely* from the wood, which in this latitude take place about the last of July or early in August."

"The following spring, when the bud commences pushing, cut the stock off to *within three inches* of the bud, and in the next season finish or cut off the snag smoothly to the bud or shoot. In the third season, when the trees are removed to the situation in which they are to remain for fruiting, be careful to re-set them at least *one inch below the insertion of the bud.*"—pp. 28, 29.

The celebrated new European pear, the *Duchess d'Anguoleme*, which is cultivated and highly recommended by nursery men in this country, it is stated, "when grown as a dwarf, produces a fine, large fruit, but small and greatly inferior when grown upon a standard." This fact, which is doubtles applicable to other varieties, should be known to cultivators.

The following mode of checking the luxuriance of fruit trees to cause fruitfulness, is worthy of trial:

"If trees are found to grow too luxuriantly, and to form only wood for years, even after they are of sufficient size and age for the production of fruit, the earth should be removed, just before the frost sets in, and a proportion of the deepest growing roots cut off."—p. 20

Among what we notice with less approbation, are the following: The writer is opposed to winter pruning, and recommends the season when the buds are swelling and the sap is in vigorous motion.

At this season, however, the sap flows copiously from the wound and injures the tree. The objection, that when pruned in autumn or winter, the wounds are apt to crack, is at once obviated by the application, which should be made in all cases of the removal of branches of any size, of a composition of tar and brick dust, or a similar substance. For budding, we are told that the best buds are those on the middle of the shoot, not those at the lower end. However true this may be in case of other fruit, it is far from being the fact as it regards peaches. We are also directed in removing the bud from the shoot, to cut nearly half way into the wood, which is generally much too deep. Neither have we found any advantage in removing the wood from the bud, which is recommended in the work; on the contrary it has been found more difficult to insert such buds properly, and a needless labor. The season of budding, it is stated, is from the beginning of July to the middle of August. With peach, apple, and pear stocks we often succeeded nearly a month later, when they have been in a thrifty state. The direction would have been of more value had the writer pointed out the essential requisites for successful budding, and the causes of failure, giving the rationale of the adhesion of the bud. After giving more than half a page of directions for the operation, he has omitted to mention the ligature, which is quite essential. He recommends *cutting out* the *borer*; this will do where this insect has not entered far; but when it has penetrated deeply, *cutting* out would be to destroy the tree, and the only remedy in this case is to extract it by means of a friable barbed wire. No remedy is given for the depredations of the Curculio, that insect being merely alluded to. But we do not wish to dwell at too much length on these defects.

There is one thing, however, in this short treatise, which we cannot pass over without noticing. That part which relates to the cultivation of the Strawberry, which is much fuller than that on any other fruit, is, with the exception of about *one fifth*, copied word for word, and even to the italicising, *from an original article on the same subject, published under the editorial head of this paper*, vol. 6, page 294, and is offered, without quotation or reference, as original matter. Until an explanation is given, this must be considered as a gross plagiarism.

In concluding these remarks, we wish once more to advert to the main part of the work, which is from the pen of Robert Manning. The errors in the names of the varieties of fruits, which have been

multiplied by the absurd practice of attempting to propagate them by seed, giving to these new varieties, thus obtained, the original name, and also by the almost universal custom of nurserymen in this country, in frequently, if not generally, propagating from unproved trees, and the desire for long catalogues, which have rendered it impossible to obtain genuine fruits with any degree of certainty or even probability, from many large establishments, call loudly for a thorough reformation in nursery nomenclature and the removal of these perplexities. The following extract from the work before us, is but a sample of the disappointments which frequently occur, and which, as Manning justly observes, "are inconceivable to any but a collector:" "The invoices of trees from France frequently furnish instances of unparalleled ignorance, or even fraud. We have received from what were considered the best establishments, large numbers yearly — on one occasion several hundred — all bearing new and high sounding names, and the greater part of which were suffered to arrive at maturity, but with very few exceptions, the fruit was entirely worthless."

Such establishments as that of Robert Manning would contribute greatly to the removal of these evils, and indeed are absolutely essential to maintaining correct nomenclature. A work properly prepared, and for which that establishment would furnish abundant materials, would be an invaluable acquisition to the cultivation of fruit in this country, and we cannot but indulge the hope that such a work will be undertaken. The preparation of such a work, it is true, would require much judgment, care and labor; instead of the meagreness, or colloquial looseness, which has too frequently characterized American publications on this subject, full and accurate descriptions, should be furnished, in which *common* or *variable* characters should be rejected, and *permanent* and *distinctive* points alone seized upon and employed. In preparing such descriptions, fruits of each variety should be examined under all different aspects of growth, and the influence of soils, seasons, and even of different climates, in producing variations in their appearance and flavor, should be strictly examined and recorded. Figures of the fruit would of course increase the expense of such a work, but if correctly executed, would add greatly to its value. Wood cuts or lithographic prints, of the outline merely, would be nearly as useful as colored engravings, and would be attended with comparatively trifling expense.

Art. III.—*Grape Culture.*

Dear Sir — In one of the late numbers of the Cultivator, Col. Spooner, of Hempstead, L. I., has furnished your readers with a detailed statement of the culture of the Isabella grape, and its conversion to wine. He justly remarks, that much is to be learned concerning the culture of the vine; to which I add, that its culture has proved, and will continue to be a most efficient aid to the temperance cause. Such considerations, therefore, must commend it to the attention of every philanthropist, and induce his aid in extending its culture.

The great enemy of the grape is the rose-bug, which appear when the vine is in blossom. The colonel remarks, "in a few days after their first appearance, thousands are seen carrying destruction through the vineyard." The best remedy he could devise, he adds, "is to go among the vines early in the morning, before the sun has warmed them into activity, and they are then easily destroyed. A few mornings spent in this way, will clear the vineyard, as they are a short lived enemy." The colonel is fortunate, if his destructive visitors leave him in a few mornings; with us, in Kings county, they protract their visit for *weeks*.

Rose-bugs, in my neighborhood, have, in some places, entirely destroyed the crop, both this and the last season; while my grapes, which were nearly surrounded with *rose bushes*, escaped their ravages. It has been the practice of many, to remove rose bushes to a distance from the grape vine, but without success. The cause is evident, they attract the bugs, but they serve also as a trap to secure them. The colonel's plan is doubtless the best *when practicable*. He would find it difficult to *catch bugs* on vines trained to a great height, as they generally are in villages, besides as they can only be caught when the morning dew is upon them, their extermination would require many mornings' labor, and in the mean time the blossom would suffer from their voracity. Col. Spooner's communication will, however, prove extremely valuable in villages and cities, by furnishing the mode of trimming the vine, to thousands who never would consult a regular treatise on the subject, but would suffer the impositions of gardeners, who, by making a great mystery

of the manner of trimming, contrive to extort large sums for a very trifling labor. And, en passant, I may add, that article alone is worth double the yearly price of the Cultivator. The colonel requests of your correspondents, information in regard to the culture of the vine, and inquires whether manuring is desirable? What kinds? and to what extent, &c. &c. His valuable article entitles him to any information on the subject your correspondents can afford; and I trust it will receive the attention it merits.

My experience has been too limited to afford full answers to his queries. With regard to manuring, however, there can be no doubt that ground cannot be *too rich* for the vine. What kind of manure is best adapted to the vine, requires the test of experience. I experimented upon three vines, a short distance from each other in like situations, and upon the same soil — a rich sandy loam. To one I applied *liberally*, unleached wood ashes, three or four times a season; to another, animal manure; and to the third vine, I applied liberally, long unfermented barn-yard manure.

The animal manure produced a luxuriant growth in the vine, and enlargement of the grapes, which exceeded any thing I ever witnessed in the Isabella vine, notwithstanding the severe drought this season. The vine "ashed," was also luxuriant, though not equal to the first vine, but more thrifty than the vine manured with barn-yard dung. I do not believe that the ashes are congenial to the vine in *all* soils, but in a sandy soil it certainly is. Animal manure, however, will answer in any soil, and I believe for any crop. To other vines I caused soap suds, &c. to be applied, which I have found of great service.

Few cultivators consider, that the roots of the vine extend along the surface of the ground as far as the vine extends above the surface, and consequently the vine receives its nourishment from a considerable extent of ground. I was requested, a few days since, to examine a vine, which appeared sickly, and upon which the grapes were withering, although not half grown. I was told that the vine had been well "manured." On examining I found that within two or three feet of the vine the ground had been made rich, but beyond that distance, the top soil had been removed, in levelling the ground, and of course the sterile subsoil alone left to nourish the vine. I need only add, that the owner understood the culture of flowers better than the vine.

My mite of information on this subject, is furnished with the hope that it may call forth the necessary information in relation to the culture of the vine. BROOKLYN.

N. B. Since writing the above, I have examined the vine to which I have applied animal manure, and find that it has several small bunches of grapes just formed, being a *second crop*. This, I presume, is owing to the extreme richness of the earth. — *Albany Cultivator.*

ART. IV.—*Orange Groves of Florida.* By ALEXANDER GORDON.

THE following remarks are the result of observations made during an extensive and varied tour, (just terminated,) over an extent of several thousand miles, in prosecuting which I have seen much which I consider both instructive and interesting. For the present I purpose confining myself to a few brief observations on the state of the Orange groves, &c. at the city of St. Augustine, E. F.

You, of course, are aware, St. Augustine is one of the oldest, if not the very oldest city within the jurisdiction of the United States, and has long been a place of great resort for invalids afflicted by the pulmonary and bronchial complaints. I had visited this city in 1831, and I confess I was in perfect raptures with its diversified beauties, but particularly with its *Orange Groves.* It then appeared like a rustic village, the white houses peering from among groves of this delightful fruit which grew in the greatest luxuriance. The clustered boughs covered with their golden produce, yielding a rich harvest to the owners, and affording a delightful shade to the foreign invalid, when he cooled his fevered limbs and imbibed health from the perfumed atmosphere. While the ear was gratified and the feelings soothed by the various notes of that delightful songstress the Mocking bird, which found a ready shelter amid their verdant foliage. But, alas! on my visit the past spring, in vain did I look for those rural bowers, so gratifying to the eye and invigorating to the system. Not a single tree of any magnitude to indicate its former grandeur. The imagination could scarcely conceive such a perfect metamorphosis. For a long period of years, the Orange had flourished without interruption from frosts or other casualties. The city of St.

Augustine was peculiarly favorable for this semi-tropical fruit. The soil is naturally sandy, but rich in calcareous and vegetable deposits, consequently well adapted to the growth of the orange and other horticultural pursuits. When I was there in 1831 the Orange had become the staple commodity of the city's commerce, and subsequently to that time I understood several millions had annually been exported. Numerous groves of young trees were planted, and $10,000 had been refused for a grove consisting of only 2 or 3 acres. Extensive nurseries could scarcely supply the demand for young trees. A vast and lucrative field opened to the enterprising horticulturist. On the native orange were engrafted the choicest varieties of other climates with the most perfect success. Prospects of immense wealth seemed beyond a doubt, but

"There came a frost—a withering frost."

During the month of February 1835, East Florida was visited by a severe frost, much more severe than any before experienced. A cutting N. W. wind which blew ten days in succession, but more violent for about three days. During this period the mercury sank 7 degress below zero. The St. John's river was frozen several rods from the shore and afforded the astonished inhabitants a spectacle as new as it was distressing. The Orange, the Fig, and all kinds of fruit trees were killed to the ground; many of them were completely annihilated; but a considerable number have started again from the roots. The wild groves in Florida suffered equally with those cultivated, at all events as far south as Lake George, and the inhabitants were thus deprived at one fell swoop of their only resource. But on my visit, in the month of April last, I was happy to find the inhabitants were not totally discouraged, for there are many thousand of young trees now ready for planting out, and in a few years more it is to be hoped, St. Augustine will again exhibit its wonted appearance. The oranges grown here were considered decidedly superior to those imported from the West Indies, and as so long a period has elapsed since they experienced so calamitous a visitation, (I believe not since 1775—6,) it certainly is worth while to persevere.

The Mulberry.—Independent of the Orange there is another field open for the enterprising, probably equally, if not more lucrative. I allude to the cultivation of the Mulberry. This has been

attempted and even carried to considerable extent, so much so, that in one instance an individual bought a lot of ground for which he paid $800 and planted it with the Morus multicaulis. At the expiration of two years he sold the lot for $1,600, having sold as many plants in the interim as cleared his lot and all attendant expenses. The climate and soil in this section of America is peculiarly congenial to the cultivation of the Morus multicaulis and the rearing of the silk worm. I saw a considerable portion of the Morus multicaulis in several gardens; but for several years the ravages committed by the rapacious Seminoles have paralyzed every effort and completely prostrated the improvements carrying on and in contemplation.

At a former period St. Augustine could boast of a very extensive Botanic Garden. It was enclosed by a formidable stone wall, and, I believe, established by Governor White. This place now serves for the *pen of a herd of swine*, which, with the exception of a few ancient fruit trees, appear the only tenants of a spot once devoted to the choicest gifts of Flora.

ART. V.—*A Flora of North America; containing abridged descriptions of all the known indigenous and naturalized plants, growing north of Mexico; arranged according to the Natural System;* By JOHN TORREY and ASA GRAY.

HERE is the first number and earnest of a work, which has been long and anxiously desired by the botanists of the United States; and which will, doubtless, be cordially greeted by the cultivators of botanical science, throughout the world. The plants of North America have always been regarded with a lively interest. They have at various times, attracted hither a number of botanists from the old world, who have reaped a rich harvest of discovery in our forests, on our mountains and prairies, and along the margins of our almost interminable rivers. A few of our own countrymen have also rendered important aid in making known the character and extent of our vegetable treasures. Their labors, however, have been for the most part, restricted to the production of *partial* or *local*

Floras, highly interesting, indeed, so far as they extended, and furnishing valuable materials for a more comprehensive work; but still they were severally limited in their scope, and of necessity, incomplete in their contents. The materials thus existing in detached masses, and scattered through numerous volumes, awaited the plastic operation of some master hand, to reduce them into one consistent body, and give to all the parts their appropriate "form and pressure." It was exceedingly important, that whoever might undertake to prepare a North American Flora, should be thoroughly acquainted with the labors of preceding botanists; and by consulting their collections, as far as practicable, be competent to detect their errors, adjust their discrepancies, and determine their various synonyms. We consider it, therefore, a subject of felicitation, that the work has fallen into the present hands, as being confessedly those among the best qualified for the task, in our country; and we rely with confidence upon their receiving the zealous cooperation and encouragement of every lover of the Science of Plants. We cannot for a moment doubt, that every American botanist will eagerly avail himself of the occasion to possess a complete Flora of our widely extended continent; and we should fondly hope, that every liberal cultivator of science in our land, would be happy in the opportunity to patronize so commendable an effort to enhance the national reputation.

The authors of this Flora have, of course, adopted the *natural system*, as being the only one consistent with a truly scientific arrangement of plants; and they have availed themselves of the latest discoveries, in order to exhibit the details according to the most approved method, in the present state of the science.

By issuing this work in parts, or numbers, some advantages will be secured, which would otherwise be unattainable. The *natural families* being complete, even in those detached numbers, the botanists in various parts of our country will have leisure to examine and verify the particulars of each, during the course of the publication and thus may suggest, in due time for an *Appendix*, (which must ever accompany works on a progressive science,) such corrections, modifications, or additions, as their opportunities or discoveries shall enable them to make. In this way, much valuable aid may be furnished to the authors, and the Flora rendered more perfect and comprehensive, without occasioning any material delay in its final completion.

The characters of the orders, tribes, and genera, are well defined; and the specific descriptions, though abridged, are sufficiently full to be clear and satisfactory. They are, moreover, frequently accompanied with notes and detailed remarks, (especially the less known, or newly discovered species,) which seem to supply all the information that can reasonably be desired, in the Flora of so extensive a region.

The additions derived from the recent discoveries of Mr. Nuttall, during his journey to the western coast of this continent, are highly important; and are here published, for the first time, from the original manuscript, furnished by that distinguished and indefatigable naturalist.

It appears, by a notice affixed to the number just published, that the work will be issued in nine parts, three parts to make a volume, and the whole forming three closely printed octavos, of about 550 pages each. The succeeding numbers will appear with as much dispatch as is consistent with their faithful execution.

Such being the character and plan of the forthcoming *Flora of North America*, we conclude our brief and hasty notice with a reiterated expression of the hope, that the worthy and accomplished authors may be adequately encouraged to persevere in their most laudable undertaking, and thereby be enabled to bring it to a successful and speedy completion.—*American Journal of Science and Arts.*

Art. VI.—*New England Aster. Aster Novæ Angliæ.*

To the Editor of the Boston Medical and Surgical Journal.

Dear Sir,—About forty years ago Dr Baldwin, of West Stockbridge, who was esteemed by Dr Sergeant, sen., as a very judicious physician, had the care of Mr Barnes's son, say 10 years old, with an affection of the herpetic kind, a painful, tedious case, called salt rheum, on one leg from the knee quite down on to his foot Many things had been used, and a mercurial course, without relief, and the doctor was ready to despair of curing the boy. While dressing his leg, one day, an Indian woman passing the house, called and on

seeing the leg, says, *I think I can give you herb will cure that boy.* What herb? says the doctor. She says, *I call 'em Indian scabious*; a strong decoction of the herb made and applied by washing the sores twice a day, and laying over a cerate plaster, and drinking of a tea of this herb several times daily. It appeared to be beneficial in a few days, and the cure was effectual. The doctor made a fair trial of the medicine. I was induced to seek for a name and add it to my list of articles for eruptive disorders. We then had a man here very useful in diseases of beasts, who had a name for many vegetables, and his name for it was beeweed (and now known by that name,) because it flowered late (the middle of September,) and continued to blossom, one stalk after another, generally till the frost destroyed it, so that it was an autumnal feast for the bees. I have considered it a species of aster, and as there are a host of herbs of that name, I have long wished to have it particularized. A few days since I spent half an hour with Professor Chester Dewey, now of Rochester, who is delivering lectures now to the students in Pittsfield. He assured me that it was the New England Aster, Aster Novæ Angliæ, and had no other name—so beautiful and fragrant it might adorn a flower garden in the fall.

He also told me that the article I had so long called cow-parsnip was in Eaton's Botany called Smyrnium aureum, afterwards sison aureum, and finally zizia aurea by a French botanist. I asked for the English of zizia. He said he did not know that in French it meant anything more than simply an herb. So that it appears that the old hysterical herb imperatoria, masterwort, must claim the name of cow-parsnip, and Bartlett's epileptic remedy must be called by the name of zizia aurea, the golden herb. But it may be a long time before it loses its name of spondylium, cow-parsnip, with the inhabitants of the counties of Hampshire and Berkshire, or of Connecticut, having retained it, probably, wo centuries. Excuse the digression.

Some years since, say thirty, visting a friend fifty miles from home on riding out one day we passed a large growth of asters in full bloom, so beautiful and of such a flavor he observed, "I should think that this might be medicinal." I replied, it is useful for the salt rheum, but not a sure remedy. He instantly dismounted, saying, *there is a young woman in our neighborhood, who has sat six successive winters with folded arms, plastered and almost useless, and*

can do very little after the frost comes, and begins now to complain. She shall try it. My said friend some years after told me that said young woman was so relieved by washing and drinking, as the said Indian woman directed, that in a few weeks she was able to do her necessary work, and persevered using it so that she was cured and had nothing of the complaint any more. The two cases related are the only ones I have known where the aster alone was used. It has been useful in many instances in mitigating the complaint, and probably curing some others. This aster is with us yet in full bloom. It is probably described in some Botany, but not in Eaton's. A tea made from barley malt, sarsaparilla and this aster (the tops and flowers,) and so bittered with fumitory as to resemble beer in some measure, I consider a useful drink while curing eruptive disorders. My circumstantial relation of cases may be accepted as an acknowledgment of obligation to the despised Indians.

I consider the name of an article of but little consequence, unless it is of use to me as a medicine. I now have the botanical name of an herb, given by an Indian to good effect in a case of nephritis, which I have long esteemed but never saw yet in any dispensatory, though known to many. If not prevented, I may probably give the account of its use by the Indians, and of its good effects in several cases.

Excuse haste and errors. I should have wrote some days sooner had not avocations prevented. Your friend,

Stockbridge, Ms., 22d Sept., 1838. O. PARTRIDGE.

REMARKS BY THE CONDUCTOR.—We were not aware that the Aster Novæ Anglæ possessed medicinal properties described above We have long known it as a showy plant for the garden, and have cultivated it as such for these 10 years, and often wondered why it has never been more noticed as an ornamental plant. The genus Aster embraces ninety species enumerated by Eaton, and probably many more are yet to be added to the number. Many of the specie, are very handsome, and would appear well in the flower borders where they will make a fine display in the autumnal months. Aster Novæ Anglæ is a tall plant, 3 or 4 feet high with a brown hairy stem, and numerous linear lanceolate, entire, acute leaves, continued at base into a pair of small, rounded lobes clasping the stem. The flowers are large, crowded on the top of the stem, with long, deep purple rays and yellow disk.

We will name a few other species which we have also cultivated with much pleasure, and can recommend them to the attention of the lovers of American plants. Why should we not love our own flowers? Why not collect them from the fields, meadows and woods, and decorate our gardens instead of bestowing all our attention upon exotics, many of them, far their inferiors?

A. multiflora, a very fine plant producing beautiful wreaths, crowded with thousands of small flowers with white rays, and yellow disks,—with smoothish linear leaves, of a deep glossy green. Stems very branching and diffuse, branchlets all one way. Aster diffusus is another pretty variety with a profusion of small white flowers with a brownish disk. Aster cyaneus, is one of the most common and beautiful species, with fine purplish blue flowers, and when cultivated grows 3 feet high. The different species in the wild state do not generally throw up more than one, two, or three flower stems, but when introduced into the garden soon form large masses, and when most other flowers have faded these will regale the sight until the heavy frosts of November. A. puniceus, A. cordifolius, A. corymbosus, A. lævis, A. diversifolius and a number of other species are worthy of cultivation and have been under our care in times past. Add to these some of the finest of the numerous species of our Solidagos, and we shall make quite an addition to our ornamental autumnal plants.

Probably many of the species so called by Eaton, may be only varieties. It is one of the most puzzling as well as interesting family of plants to the botanist, (especially to a young one,) which exists in our country, and he will be often perplexed to identify the species.

Art. VII.—*Profit of Fruit Trees.*

The profit which might be derived from the cultivation of fruit, it is believed is more neglected than almost any other crop of equal importance. The supply of markets might be safely relied on as a source of income, by those who live in the vicinity of our towns and larger villages. Predictions of ill success will of course be

repeated by those who see failure in everything, but the scantiness of good fruit in market, and especially of the early varieties, is well known; and our first rate kinds can scarcely be obtained in any quantity. These, when once procured, may be as easily cultivated as the worst, and the demand for them would be certain. In our cities, where alone such can be had in market, the prices of the finest kinds, instead of diminishing, have rather advanced. In proof of the demand for such, a case may be mentioned on the authority of William Kenrick, who states that a single tree of Prince's Imperial Gage Plum, owned by Samuel R. Johnston, of Charlestown, Mass., *has for several successive years*, yielded crops which were sold at from *forty to fifty dollars per annum*. This, it is true, is a fine and uncommonly productive variety, but it will grow in New York as well as in Massachusetts. If finer fruit is demanded than formerly and the public taste is growing fastidious, cultivators may very easily outstrip this growth by directing their attention to the best kinds.

To those who do not live in the vicinity of towns, and who are consequently deprived of a ready market for early fruit, there is another channel for profit opened, not less important. This is the cultivation of fruit, chiefly apples, for feeding farm stock. It has already received considerable attention, and the value of this kind of food and its superiority to potatoes, fully determined. But its *cheapness* is not perhaps generally appreciated. A great advantage in raising this crop, is the little labor in cultivation which is required, after the orchard has attained bearing size. The crop may be said to come without labor, nothing more being needed than to gather it, and this is in fact less laborious than the gathering of almost any other. The actual cost per bushel may be ascertained with tolerable accuracy by an estimate. We will first determine the expense of an acre of orchard. Land well adapted to this purpose may be had for forty dollars an acre: and the number of trees to the acre may be one hundred, if the variety is the Bough or Tallman Sweeting, which are of smaller growth than usual. The price of a hundred trees, if purchased by the quantity, would not be more than fifteen dollars. A laborer would dig the holes and plant ten in a day,* so that the planting, at a dollar a day, would

*It is of course taken for granted that the holes in this case are large—several feet across; and not so small as are usually dug; or barely sufficient to admit the roots,

cost ten dollars. No further care would be needed until the trees should arrive at a full bearing state, but cultivation, which of course would produce sufficient crop to pay the rent of the land during that time. An orchard then in a good bearing condition would cost as follows:

Cost of Land,	$40
" " Trees,	15
" " Planting,	10
	$65

The orchard would subsequently produce more if kept generally cultivated; the crop obtained from the soil would pay the cost of the work. The quantity of fruit would of course vary; but a very intelligent farmer, whom experience enables to judge, thinks that an orchard of the Tallman Sweeting would produce on an average, ten bushels per tree yearly. He frequently obtains much more, often double, and sometimes triple that quantity. The product of an acre would thus be a thousand bushels; the cost would be the interest on the land, or about four dollars and fifty cents, which would furnish the apples on the tree at about *half a cent per bushel.* This is better than raising potatoes, and would save much tedious planting, hard hoeing and laborious digging.

Apples ripening in summer would be of great value, as it is quite important in fattening animals, to commence early. The common Sweet Bough would be one of the best at that season, as it produces good, and uniform crops. The Summer Rose, a sweet apple of excellent flavor, which ripens about the same time, is according to Manning, "a great bearer," and would consequently be very valuable. The Tallman Sweeting would certainly be one of the very best for late fall and winter use, as it is a fruit of uncommon richness and uniform productiveness, commonly bearing abundantly every year. But other varieties, particularly adapted to this purpose, are a desideratum.—*Genesee Farmer.*

which cannot readily penetrate the hard subsoil surrounding the hole, and are thus limited in growth, to the great injury of the tree.

Art. VIII.—*Modes and Profits of Strawberry Culture;* By Tunis G. Bergen, Narrows, L. I.

Mr Buel—Having noticed an article in your August number, on the cultivation of strawberries, to which my attention has been directed for a number of years, and wishing that the public should receive all the light upon the subject which can be diffused, induces me to communicate what little knowledge I possess of the matter. The kind generally cultivated on Long Island (where I reside) for the supply of the New York market, I believe to be the early scarlet, and of these I have at present about three acres under cultivation. We generally transplant, and form our new beds in the beginning of May. Formerly the universal practice was, to transplant in rows from two to two and a half feet apart, the plants single from one to one and a half feet from each other in the rows. My present practice, and that of many others, is to plant them in hills, about three and a half or four feet asunder each way, placing four plants in a hill, two and two together, about three inches apart. By planting in hills there is a great saving of labor, for it takes less time in transplanting, they are more easily kept clean by running the cultivator through them both ways, and there is less labor in hoeing; whereas, by the old method, when planted close, the cultivator could not be used in them at all, or at most only one way. The cultivator is run through them as late as it can be done without serious injury to the runners, hoeing them each time, and it is seldom, when it is judiciously done, they require it over three times. I have always, in my practice, found them when properly managed, to cover the ground with a sufficient number of plants to produce a good crop of fruit the next season. A piece covering less than half an acre, of last year's planting, produced this season over 3000 baskets, containing nearly a pint each, which were sold in the New York markets for $200. This, however, is an uncommon yield, and is seldom equalled or excelled. New beds almost invariably yield better than old ones, and produce larger fruit, although apt to be sandy after showers. It took nearly two acres of my old beds to yield the same quantity the half acre of new did. The soil I prefer for strawberries, is light sandy land newly cleared, on which no ani-

mal or vegetable manure has been used. On land of this kind, which has been prepared by previous crops, and on which weeds have not been suffered to go to seed and take possession, they will last four or five years, while on old land they are seldom profitable over two, and often but one.

The greatest enemy to the beds is white clover, which, in old lands, after the first year's bearing, generally gets possession of the beds and eradicates the plants. Land lately cleared is not often troubled with this grass; the great danger is from sorrel, but this is less destructive. Our beds cover the whole ground; there are no alleys, no clipping of runners, no digging the paths, no burning with straw, as recommended by some gardeners, for it is doubtful whether these operations would answer our purpose; whether they would be profitable and pay cost. At all events, our experience leads us to adopt the plan I have described. The only attention which I have found necessary and advantageous, after the first year, is to pull up and destroy the weeds and grass, and to run a light harrow over old beds, early in the spring, when matted too thick with plants. As for manure, it is not customary for us to put any on. I once read an account of plaster being highly beneficial, which I tried, but it failed in improving them. Lime might aid in destroying sorrel, but have not tried its virtue.

Much has been written about male and female plants, and of the necessity of mixing them in the beds to make them fruitful. Now all this may be necessary with some varieties, but with the one we cultivate I can assure you it is not; no cultivator in my neighborhood from which the New York markets are principally supplied, that I have ever heard of, does it. I once tried an experiment which appears to be conclusive. I planted a small bed in my garden at the time when the fruit commenced ripening, taking only such plants as had good and fair fruit on them, and no others. This bed produced the next year abundantly; they were all female plants, and no males in their vicinity to impregnate them. The male and female blossoms of this variety must be on the same plant, although to the eye no difference is presented in their appearance.

If you deem these remarks worthy of notice, you may insert them in your valuable journal; and if you desire it, I may at some future period describe the manner in which cucumbers, melons, &c., are cultivated among us for the supply of the New York markets.—*N. Y. Cultivator.*

Art. IX. — *Massachusetts Horticultural Society's Annual Meeting.*

[Concluded from page 400.]

EXHIBITION OF FRUITS.

From Messrs S. & G. Hyde of Newton, a large collection of fine fruit of varieties as follows.

Pears. — Forelle, Seckel, Coffin's Virgalieu, Urbaniste, Tucker's Bon Chretien.

Apples. — Doctor Sweeting, Winter Pumpkin Sweeting, Fall Sopsavine, Pound apple, Hubbardston Nonsuch, Greening from South Reading, Dutch Codlin, Flanders Pippin, Gravenstein, Smith's Gilliflower, Berlin apple, Ben apple, Pæony apple, Vandevere, July flower, Bough Harvest, Feurler Sapsons, Coggswell, Grand Sachem, Red Calville, Washington Pearmain, Lyscom, High Top Sweeting, Scalloped Gilliflower. This last, with many others, were very beautiful.

Also *Watermelons*, of extraordinary size, one weighing 39 3-4 lbs. and one 44 3-4 lbs.

From Mr Philip P. Spaulding of Chelmsford.

Apples. — A seedling Green apple, and another seedling fruit, also a new French fruit called Mons le Cure, and another, De Marseilles, a noble, large, red fruit of fine flavor.

From Mr Ives, from his garden in Dearborn street, Salem.

Pears. — Beurre Capiaumont of Van Mons, Frederic of Wurtemberg, Raymond, Beurre Bosc, Andrews, Bleecker's Meadow, Bourgomestre of Boston, Napoleon, St. Germain Panache or Striped St. Germain, a new and curious striped fruit, similar in form to St. Germain, but the specimens were not quite so large. Passe Colmar, Cushing, Lewis, and a new Flemish variety, name lost.

Apples. — Pickman, Swaar, Michael Henry Pippin, Mela Carla, but not that kind which has been so lately received from the London Horticultural Society; Wellington, Rambo or Romanite, Carhouse or Gilpin, Bullocks Pippin.

From Mr Manning, from his garden, Dearborn street, Salem, the following specimens, many of them new and rare and such as have never yet been produced in this country.

Pears. — Andrews, Green Catharine of Coxe, Jackman's Melting, large and handsome, Autumn superb, Bell Lucrative, Belle et Bonne, Beurre Diel, Easter Beurre, Brown Beurre, large and handsome, from Standard Tree, Bezi Montigny, Bishop's Thumb, Bleeckers Meadow, Bon Chretien Fondante, Williams' Bon Chretien, Spanish Bon Chretien, Fondante d'Brest, Catillac, Cumberland, Cushing, Doyenne Gris, D'Angouleme, Glout Morceau, Green Sugar, Hason's Incomparable, Harvard, Henry Quatre, Jalousie, Johonnot, Lewis, Marie Louise, Messin, Jean, Long Green of Coxe, Long Green of Autumn, of new edition of Duhamel, Naumkeag, Newtown Vergaleau, Winter Orange, Passe Colmar, Pope's Quaker, Prince St. Germain, Rousselette de Rheims, Roussellette Panache, new Winter Royal, St. Ghislain, Sieulle, Stevens' Genesee, new, Styrian, Surpass St. Germain, Swan's Egg of Coxe, Egg Pear of Duhamel, Urbaniste, Washington, Beurre Bollwiller, Beurre Comte du Fresnel, Beurre Duval, Hooper's Bilboa, large and beautiful, new, Figue de Naples, Frederic of Prussia, Fulton, Garnstone, Green Pear of Yair, Josephine, Jamenette, Austrasia, Sabine of the French, Louise Bonne of Jersey, fine, large, great bearer, new, Roi de Wurtemberg, Present Royal of Naples, Reine des Poires, Surpass Vergouleuse, Beurre Van Marum, Webber's Yellow Autumnal, Alpha, Brugmansbirne, English Autumn Bergamotte, French Autumn Bergamotte, Bezi de Chaumontelle, Crassane, Knight's seedling, Coffin's Vergouleuse, Petre, very superior, great bearer, striped Long Green, Wilkinson, Ronville, Cassolette, Summer Thorn of Thoulouse, Doyenne Blanc — 84.

Apples — Cambuthuethan Pippin, Crowninshield Sweet, new seedling, fine, two sorts new seedling Crabs, Rambour d'ete, Orttley Pippin, Ribstone Pippin, Fall Harvey, Swaar, Yellow Bellflower, Blue Pearmain, Murphy, new, fine, large, Putnam's Harvey. — 13.

From Mr J. Clapp, South Reading; 3 fine Melons, beautiful Peaches, Siberian Crabs and Lady Apples, York Russet, basket containing Apples, Grapes and Peaches, Platt's Burgamotte.

From Jacob Dean, Mansfield, Mass.; Pine apple Peaches, Hay Boy, Golden Sweet, Golden Russet, Apples, large Early Peaches.

From Thomas Banks, Roxbury; seedling Pear, Beurre de Roi, Andrews, Burgomaster, St. Michael's, Hunt's Connecticut Pears, and Red Calville Apples.

From John A. Kenrick, Newton; Pumpkin Sweet Apples, Kenrick's Heath Peaches, and fine Orange Quinces.

From Dr Howard, Cambridge; 2 baskets containing variety of Pears, Apples, Nectarines, &c.

Large basket of Sweetwater Grapes, raised in the open ground by William Oliver, Esq.

For the Committee,

WILLIAM KENRICK, *Chairman.*

September 28, 1838.

EXHIBITION OF VEGETABLES.

From Samuel Prescott, Elm Hill, Roxbury, six large crook neck Squashes.

From John Hovey, Roxbury, Tomatoes.

From Mrs Welles, a Squash, (6 feet 4 inches in circumference, weight 88 lbs.) from seed received from Paris.

From T. Thompson, Jr. an African Acorn Squash.

From J. D. W. Williams, Roxbury, Elm Hill, two Drumhead Cabbages, and two Squashes, weighing 24 lbs.

From Richard Ward, Roxbury, extra fine Lima Beans.

From J. Clapp, South Reading, a crook neck Squash.

From Samuel Pond, Cambridgeport, Pine Apple Potatoes, and Acorn, Autumnal and one other variety of Squash (name unknown.)

From Hon. John Lowell, Roxbury, Love Apples, (Tomatoes), and Sweet Potatoes.

From James Eustes, South Reading, a Chili Squash, (wt. 62 lbs.)

From Jonathan Warren, Weston, a large Potato.

From J. L. Moffatt, Esq. Roxbury, Yellow Tomatoes, and an Autumnal Marrow Squash.

From John M. Ives, Salem, a Smyrna, or Palermo Squash. A prolific variety, and runs very little.

From Samuel Hyde, Newton, Mangel Wurtzel.

From Rufus Howe, Dorchester, three Valparaiso or Lima Squashes, and one African Blue Skin Squash.

From Mrs Timothy Bigelow, of Medford, a Seven Years' Pumpkin, weighing 46 lbs.; it was in perfect condition, and it is said will remain sound for seven years. It was raised in 1837, and exhibited at the annual exhibition of that year.

From Abbott Lawrence, Jr. Park Street, an Autumnal Marrow Squash.

From Perez Smith, Weston, a Canada crook neck Squash, a *trim specimen*, and curious.

From E. Sparhawk, Brighton, a crook neck Squash, (wt. 46 lbs.)

From Capt. Geo. Lee, West Cambridge, a Squash, of mammoth size, weighing 130 lbs.; 2 Seven Years' Pumpkins, weighing 81 lbs.; 2 baskets Tomatoes, and 1 basket Horticultural Beans.

From James L. L. F. Warren, Brighton, Cuba Love Apples.

SAMUEL POND, *Chairman.*

Art. X.—*Blight in Pear Trees, and Remarks on Plums.*

Joseph Breck, Esq.—Sir, I have taken the N. E. Farmer for the last eight years, the Albany Cultivator from its commencement, and frequently see the Genesee Farmer and other agricultural papers and have read all the various articles on the fire blight. From my own experience I am satisfied that not one of the various writers knows anything about it. When our medical men shall discover the cause and cure for the Asiatic cholera, then and not till then, I fear, will our horticulturists learn the cause and cure of the blight. I have whittled many limbs into fine shavings, dug up a number of trees, examined the roots and shavings as closely as possible with a good glass and am fully satisfied that it is not caused by any insect. One of my trees in the fall of 1837 produced 10 bushels of pears; this season blossomed full; soon after the fruit was formed, was attacked on the body about four feet from the ground; a strip around the body of the tree about 10 or 12 inches wide was entirely killed in three or four days, whilst every limb was vigorous and healthy. The bark of the body of the tree was coarse and rough. Could that have been done by an insect? I had 50 trees, 25 of which were killed from the seedlings of two years up to those of 30 years standing. I had the Easter Beurre, Bartlett, Passe Colmar, St. Michael, Seckle, down to the most worthless seedling. The disease pays no attention to age, location or quality of fruit. My soil is a sandy loam; a number of the trees stood in the kitchen garden

and have been cultivated for 25 years ; others stood in the fruit garden, which has been in sward for a number of years. One tree stands within a few feet of a spring strongly impregnated with iron, and the soil in the immediate neighborhood contains iron ore which I should suppose would answer as well as to hang old iron on the limbs of the tree. A Seckle pear tree had 40 or 50 pears of a very large size ; ripened well ; about two weeks before they were ripe, the tree was attacked within two feet of the ground, although the tree was apparently healthy and vigorous above the wound ; the flavor of the fruit was strongly affected by it. Could this have been caused by the effect of the sun upon unripened wood ? The disease has been known in this section of country about six years ; it, commenced on my trees this season about the 20th of May, when the trees were in full blossom and continued till the first of September. The months of April and May were remarkably cold and wet, the summer hot and dry. The apple trees and the quince are affected by the disease, but not to the extent of the pear.

As to some experiments that I made on plums (see New England Farmer, vol. 15, No. 31,) not one of them answered any good purpose.

Doct. J. P. Kirtland, a gentleman who has had probably more experience than any other man west of the Alleghany mountains, says, (in a report to the legislature of Ohio) he knows from experience that hogs, whenever they can have ready access to the tree to eat the premature falling fruit, and root and rub around the tree, is an effectual remedy. A gentleman at my house a few months since, says that he has a plum orchard, which for a number of years used to be loaded with fruit ; the plums commenced falling soon after they were formed and continued to fall during the whole season, so that scarce any ever ripened. Ten years ago he converted it into a hogpen, and since has never failed to have plums in abundance.

If any gentleman will call at my house in Euclid and examine my pear trees, and is not fully convinced that the disease is an epidemic, I will give him a plain farmer's dinner.

Respectfully yours, &c.

Euclid, Nov. 4, 1838. M. L.

Art. XI.—*Miscellaneous Matters.*

Plantation of Fruit Trees. — About the year 1769 a stranger purchased a farm near the village of Bethincourt, ten miles from Verdun-sur-Meuse. This village is placed on a soil, having a base of calcareous salt, where fruit trees find great difficulty in flourishing. The most robust ones never arrive at any great size, and are soon covered with excrescences and moss. This particular farm, however, had an orchard, which was quite an object of admiration, for the extreme beauty of its trees, and the extraordinary quantity of fruit produced. A new proprietor, wishing to plant the piece of ground with fresh trees, caused the old ones to be taken up, and in doing so, there was found under each tree a piece of pavement, or else a large slab, about four feet square. This was placed there apparently to prevent the trees from sending down their roots perpendicularly, and to force them to spread out in a horizontal direction through the upper part of the soil, where the trees could obtain better nourishment than in the ground below. This practice was at the time unknown to the inhabitants of the country. Two proprietors determined to try it in their new plantations, and accordingly they each placed young trees over large flat stones. One of them, M. Perrin, in 1815, planted in this manner a large quantity of fruit trees of different sorts, which are now exceedingly productive, though to all appearance they have not by any means arrived at the full measure of their growth.

The Society of Horticulture, at Paris, has lately been written to on this practice, and an animated enquiry has been instituted into its merits and advantages. On the one side, it has been maintained that it is useless to place the flat stone under trees when the subsoil is inferior, because the tap-root is always cut, if one exists, and because the other roots quickly descend outside the stone, particularly where the soil is poor. Others declared that the side roots quickly take the place of the perpendicular root, which has been cut off, so that cutting off the tap-root is useless. On the other hand, it was stated that the roots never make an effort to pass over the stone, unless when the subsoil is excellent, and more suitable to their growth and nourishment than the ground above. One old member of the society related, that it was the custom, in his youth, to

put a tile under the root of trees when planted in poor land: and the secretary raised a question of an opposite nature, by stating the plan pursued in England, of putting gravel under the roots of fruit trees, when the ground was very rich, in order to moderate the vigor of the trees, and to render them more fruitful by hindering the roots from descending too far. Another member confirmed this view of the subject, by stating that he had known pear-trees to be constantly barren from too much vigor, arising from the excellence of the ground in which they were planted.

On this subject we have before us the opinion of M. Poiteau, one of the most experienced horticulturists in France, and we think we shall gratify our readers by making it public. "If," says he, "I consult my memory and my experience, I should say, that a fruit tree raised in a nursery never has the tap-root when planted out afterwards, either because it has been lost in the artificial mode of raising it, or because it is always cut off when taken from the nursery. My experience cannot point out to me a single instance where a fruit tree, whether with stone fruit or kernels, has re-produced the tap-root after being planted out, supposing that it has been raised in the usual way in the nursery. There are, undoubtedly, several fruit-trees which send down their lower roots deeply enough to have the appearance of descending perpendicularly, but these roots never obtain any great growth, even when in good ground, because the sap abandons them, to distribute itself in the side or horizontal roots, more favorably placed at a less distance from the surface of the ground. When the subsoil is bad, and a flag or pavement is placed under the tree to hinder the roots from losing their time in making efforts to descend, I think they at once change their direction, and proceed horizontally along the good ground above, and derive strength from it. In this way a slab or even a tile placed under a tree, at the period of its being planted, may be of great service to its growth, in hindering the roots from making injurious efforts to penetrate into the inferior soil below. Such is my opinion on this matter, as well as many other cultivators of my acquaintance, of great experience in horticultural matters.

"As to the English practice of placing gravel at the bottom of the holes dug in rich ground, of great depth, in order to prevent fruit trees from growing too luxuriantly, theory and practice declare it to be useful. The elements of the sap, derived from a great

depth, may produce much timber, although but little fruit, and of inferior quality."—*London Hort. Jour.*

THE UTILITY OF TRAINING FRUIT TREES TO PLANKS.—In the *Journal des Connaissances Usuelles*, of September, 1837, a passage occurs which states, that "it has been observed at Utrecht, and remarked as a singular circumstance, that black grapes, exposed to the south or southeast, ripen much earlier and better against planks than against a wall. The support formed of planks ought to be sheltered by a little roof about two or two and a half inches wide, to keep off the rain. This is also an excellent mode of preserving peaches." This reminds me that, about sixteen or eighteen years ago, in the Rue de l'Ouest, at Paris, a garden was taken off the street by means of planks, which were covered with plaster on the side next the street, but left bare on the part next the garden. This enclosure, though roughly executed, exists still, and may remain for a long time to come. When I saw it constructed, I at once supposed that the trees fixed to the espalier formed on the planks, would flourish better, and the fruits be finer and larger than if against the wall, which, when the sun does not shine on it, is cold and moist. Planks, on the other hand, become still hotter than the wall, under the influence of the sun, and are neither cold nor moist when out of its range. So strongly did the circumstance interest me, that I made a point of visiting the garden from time to time, in order to see if my supposition was correct. I found that I had judged quite right; the fruits are, to this day, better on the trees against the planks, than in any other part of the garden. The fact, therefore, observed at Utrecht, is quite natural, and we may take a useful hint from it. It might not be sufficient to make enclosures for gardens of planks in all instances, but they may be erected here and there in the enclosed space with advantage. Thus in the gardens at Montreuil, where peaches are produced in such vast quantities as to supply all Paris, plank divisions may, with great propriety, be employed with espalier attached to them. They should, I conceive, be always lower than the enclosure walls, for then they would throw less shade. A coping should be placed on them as usual, both to preserve the timber and to protect the trees attached to them. A layer of plaster might, in some cases, be used. If it did not grow damp, it would contribute much to the preservation of the planks. It might also be necessary

to fix stancheons at certain distances, to make the construction more solid. There can be little doubt that the expense of plank enclosures is much less than that of walls. I would recommend that this plan be tried in the neighborhood of London, as I am told that near the metropolis fruit trees on espaliers succeed better than others.—*Ib.*

Officers of the Massachusetts Horticultural Society.—The Annual Meeting for the choice of officers was held at their room, Saturday, October 20, 1838, agreeably to notice given.

The committee appointed to collect, sort and count the votes, reported the following gentlemen as chosen:

President—Elijah Vose, Dorchester.

Vice Presidents—Enoch Bartlett, Roxbury, Jonathan Winship, Brighton, M. P. Wilder, Boston, John Prince, Roxbury.

Treasurer—Samuel Walker, Roxbury.

Corresponding Secretary—Robert Treat Paine, Boston.

Recording Secretary—Ezra Weston, Jr., Boston.

Counsellors—T. Lyman, Jr. Boston, Augustus Aspinwall, Brookline, Thomas Brewer, Roxbury, Henry A. Breed, Lynn, George W. Brimmer, Boston, Joseph S. Cabot, Salem, E. Hersey Derby, Salem, N. Morton Davis, Plymouth, David Haggerston, Watertown, Joseph G. Joy, Boston, William Kenrick, Newton, John Lemist, Roxbury, William Lincoln, Worcester, Thomas Lee, Brookline, Charles Lawrence, Salem, Benjamin Rodman, New Bedford, M. P. Sawyer, Boston, Charles Tappan, Boston, Aaron D. Williams, Roxbury, Jonathan Winship, Brighton, William Worthington, Dorchester, Thomas Whitmarsh, Northampton.

Professor of Botany and Vegetable Physiology—Rev. John L. Russell.

Professor of Entomology—T. W. Harris, M. D.

Professor of Horticultural Chemistry—J. W. Webster, M. D.

STANDING COMMITTEES.

Committee on Fruits. Wm. Kenrick, Chairman, Robert Manning, Sam'l Downer, Benjamin V. French, E. M. Richards, John A. Kenrick, John M. Ives, Salem, P. B. Hovey, Jr., L. P. Grosvenor, J. L. L. F. Warren, Samuel Pond, W. H. Cowen.

Committee on the Products of Kitchen Garden.—J. L. L. F.

Warren, Samuel Pond, Aaron D. Williams, Rufus Howe, Ebenezer Crafts.

Committee on Flowers, Shrubs, etc.—S. Walker, Chairman, C. M. Hovey, J. Breck, S. Sweetser, D. Haggerston, S. R. Johnson, W. Carter, John Towne.

Committee on the Library.—E. Vose, Chairman, R. T. Paine, W. Kenrick, E. Weston, Jr., C. M. Hovey, M. P. Wilder, Thomas Lee.

Committee on Synonyms of Fruit.—J. Lowell, Chairman, R. Manning, W. Kenrick, S. Downer.

Executive Committee.—E. Vose, Chairman, C. Newall, B. V. French, E. M. Richards, E Bartlett.

Committee on Finance.—E. Vose, Chairman, B. V. French, L. P. Grosvenor.

Col. Wilder proposed the Abbe Berlese, of Paris, as Honorary Member—and M. J. Rudz, Jr., of Frankfort on Main, Germany, as Corresponding Member.

Forcing Fruit Trees. — In Austria, Hungary, Moravia, and Bohemia, a mode of forcing certain fruit-trees is practised, which it may not uninteresting to mention. In hot houses, fifteen to eighteen feet high, and from nine to twelve feet deep, square cases are prepared in the ground about three feet in depth, and equally broad. In these are to be placed such trees as are fixed on for forcing, such as Reine-claude plums, and other similar fruits. When the frost arrives after November, care is taken to uncover, in a great measure, the roots of the trees the day before they are to be removed. A mass of earth, of about eighteen or twenty inches in diameter, is left at the bottom of the tree, and a quantity of water is poured on the roots then nearly exposed. The frost seizes on this immediately, and the tree feels the effects of the cold more powerfully in consequence. On the morrow the tree is taken up, and removed on a machine, prepared for the purpose, to the cases already prepared in the hot house. The earth surrounding the roots is left on, and the temperature is immediately increased, and maintained until the fruit begins to knit. The effects of the frost on the earth surrounding the roots, by degrees, disappear, and the tree receives the influence of the heat, as if the spring-time had replaced winter, and vegetation had commenced. Care must be taken that the trees be often watered, in order to preserve a proper

degree of freshness. During the flowering, this may be omitted. When the fruit has once knit, the temperature must be raised, as takes place in summer. The maturity of fruit comes, as a matter of course, and generally the crop is very abundant.—*Hort. Jour.*

CHARCOAL, USEFUL IN THE PRESERVATION OF PLANTS.—One of the great inconveniences of low and moist grounds is, the difficulty they present in cultivating flower roots of every description. These are generally destroyed by a kind of mouldiness which attaches itself to the shoots below, at different periods of their growth. It is easy to know when a plant has been thus attacked, for the stem assumes a dirty green color, approaching a yellow. The yellow soon supersedes the other, and the leaves change and sometimes fall off. The only means of preventing this evil, which most commonly attacks a number of plants at the same time, is to place a layer of powdered charcoal over the parts where the roots are to be planted. The best kind of charcoal for this purpose is, that which remains in dust after the large pieces have been taken away. When the earth has been prepared in the usual way for the reception of roots, about half an inch of the charcoal powder should be spread over the surface, the whole should then be lightly stirred together, in order that the charcoal should be incorporated with the earth. We have tried many experiments to prove the efficacy of this remedy, and in no instance has there been a failure. Thus, in a bed of roots fifteen feet long by five wide, situated in a low moist soil, two thirds were a short time back, prepared in the way above stated, while the remainder were left undefended. The result was, that in the latter portion the roots were lost, whilst in the other we never had finer plants. The powder should be preserved dry, and, generally speaking, it may be used with advantage in the flower garden.—*Ib.*

QUINCY MARKET.

[Reported for the Horticultural Register.]

APPLES, Baldwin,	barrel,	1 75	to 2 00
Russett,	do.	1 50	to 1 75
Fall,	do.	1 25	
Sweet,	do.	1 75	to 2 00
BEANS, White	bushel,	1 75	to 2 00
BEETS,	do.	62½	
BERBERRIES,	do.	1 50	
CABBAGES,	dozen,	75	to 1 00
CAULIFLOWER,	head,	17	to 25
CELERY,	bunch,	6	to 12
CRANBERRIES,	bushel,	1 50	to 1 75
CHESNUTS,	do.	1 62	
GRAPES, Malaga,	pound,	25	
Black Hamburgh,	do.	50	to 75
GARLIC,	do.	20	
LEMONS,	box,	4 00	
ORANGES,	hundred,	2 50	
ONIONS,	bushel,	1 00	
White,	do.	1 12½	
PARSLEY,	peck,	25	
PARSNIPS,	bushel,	75	
POTATOES, Eastport,	barrel,	2 00	
Chenangoes,	do.	1 62½	
Common,	do.	1 50	
Sweet,	bushel,	1 25	
PEARS, Baking,	do.	1 50	
Eating,	doz.	37½	to 50
QUINCES,	peck,	37½	
RUTA BAGA,	bushel,	40	
SQUASH, Winter, of sorts,	pound,	1	
SPINACH,	peck,	25	
TURNIPS,	bushel,	25	

Boston, November 20, 1838.

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AND

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DECEMBER, 1838.

ART. I.—*Extracts from Professor Johnson's Lectures before the Royal Society and Central School of Horticulture and Agriculture, England.*

THE period of the duration of roots varies much, and the plants are termed annual, biennial, or perennial, according as they last for one, two, or several years. The life of an annual plant is an epitome of that of flowering plants generally, which only last till the period of maturation, and when they are perpetuated, this being only from a constant succession of new plants round the bulb. The cause of plants enduring for a longer period than year to year, probably consists from their storing up a larger supply of nutriment than is required for the purposes of its life. A herbaceous plant after the first shoot developes itself, and then produces flowers and seeds; a larger portion of nutriment in the root than what is required for the subsistence of the plant, enables the centre to throw out a large number of buds around it.

If we examine a section of a twig by the microscope, we find the centre occupied with medullary matter or pith, around which is a medullary sheath, formed of woody fibre and spiral vessels. As the tree grows older, the pith becomes contracted into a smaller diameter, as well as the sheath, and a mass of other matter is formed; the pith of the yearling twig becomes a dark spot in the centre.

That the woody matter is developed downwards, may be proved by a simple experiment, that of making a continuous wound around any tree or branch, which will be found to enlarge above, but remain of the same size below, and the same effect will be produced if a ligature is tied round any part. It may also be seen, if we cut off the bark from a piece of elder, when the thin woody fibres may be seen descending an inch or two below the bud. In the progress of their descent to the soil, these fibres occasionally meet with impediments, and they then take a circuitous route. It is this which forms the knots that give beauty to wood, that is esteemed by the cabinet maker. In a well proportioned stem, the grain is uniform from top to bottom, but in a pollard we find many of these curvatures, which give to the wood its beauty of appearance. One of the most beautiful specimens of variegated wood is that of the old Fairlop oak, which was a pollard of large extent, and part of which was made into a reading-desk, which is now used at St. Pancras New Church. In spring, when the buds expand, the bark is easily separable from the wood, and this is from a secretion of viscid fluid, called cambium, which is probably the food for the supply of the descending fibres. Many trees are decayed in the inside whilst they are yet covered with verdure; and a most interesting instance of this is afforded in the Salsey oak, near Northampton, the age of which is computed at nearly a thousand years, and which is now a mere shell, from the decay of the interior. If, however, a wound is made round the bark, it uniformly dies, as no nutriment can be conveyed to the inner portions of the tree. This operation, termed girdling, is extensively practised in the back settlements of America, prior to the felling of the timber in clearing land, as the upper portion of the tree never vegetates. There will be an occasional development, because sufficient nutriment may be left in the tree to cause the buds to expand for one year. There appears to be no assignable limit to the growth of an exogenous or outward growing tree, and judging from appearance, many have attained a very enormous age; the number of 1,000 and upwards of circles, indicating the successive annual developments of wood, having been occasionally observed. An attention to the age of trees is of very great value to antiquarian researches. Near the great lakes of North America is a very extensive artificial embankment, which it is evident could never have been constructed by the present race of

Indians, and is about five or six feet high, evidently constituting a great continued barrier from the north side of Lake Ontario to the vast plains of the Mississippi, upon which trees are growing. On carefully counting the rings, it is ascertained that they must have grown there for upwards of 400 or 500 years, and it may be presumed that they were abandoned some time previously. This brings the date to a very remote period, and we may hazard the conjecture that they were the works of the ancient Mexicans, prior to their migration to the south, a record of which event is preserved in the traditions of this people, as well as in their hieroglyphical inscriptions. M. Bose has assigned the growth of trees, as one foot in diameter for every one hundred years; but this calculation is found to be fallacious. The celebrated Golenos oak, near Newport, which was felled in 1810, full of luxuriant growth, was 9 1-2 feet in diameter, from which it should have been considered, according to this data, to be 950 years old, whilst the number of circles was only 450. When the main trunk was sawn through, there was found embedded in it, about six feet from the ground, a large stone, the lodgment of which, as well as toads and serpents, is easily accounted for, by their obtaining access into any hole made by accident, and the wood growing over it, so that, if animals, they have been prevented making their escape. In scarcely one section of a tree do we find the pith in the exact centre of the mass, but with a great inclination to the south, which is accounted for, by the number of buds being greater in the vessels more expanded, and the fibres deriving more nutriment in the part exposed to the sun.

Next to the stem, the leaves are the most prominent portion of the plant. They appear to be formed from the expansion of the minute vessels of the stem; the veins have a connection with the medullary sheath surrounding the pith. Both the upper and under parts of the leaf are composed of a network of fibres: this may easily be seen in walking through the woods in summer, in leaves which have lain a long time upon the ground, where the cuticle has been removed by insects forming them into skeletons. These may also be formed by the simple artificial process of maceration in water, which decomposes the cuticle. These dissections are of value in vegetable physiology, rendering us familiar with the various forms of the leaf. Of all the various parts of vegetation, these are the

most ornamental. Flowers last only for a short time—a day, a week, or a month, when all their beauty is gone; but most trees retain their foliage for half a year, and those in green-houses through the whole year. The functions which they perform are not accurately ascertained, although conjecture has exhausted itself upon the subject. The functions they perform have been considered analogous to all the involuntary ones of animals; they have been considered as perspiratory, absorbent, and digestive organs, mediums for conveying the agency of electricity, lungs, &c. This last opinion is the most prevalent, but their action may be modified much by time, place, or habit, as well as growth. Unhappily, no department of science is so little known as vegetable physiology, although volumes have been written upon the subject. By an examination of the human body, and a careful dissection of its parts, we are enabled to determine the various parts and functions, and are assisted in this also by the aid which the analogy of the examination of animals presents. We are enabled by this examination to arrive at a tolerably correct view of the nature of the lowest grade of animal which exists; but the organs of vegetables are so different, and their general economy so peculiar, that we cannot possibly arrive at any conclusions from analogy. Their gradual growth and development, and at a certain period their decay, show that they are exceptions to the inertia of matter. By the aid of the microscope we can recognize a series of vessels in which circulation is going on; but comparison goes no further, and beyond this we can only be guided by conjecture.

Many generations since it was found that a plant would grow under the exhausted receiver of an air-pump, provided some of the leaves were exposed to the external atmosphere. If a plant be confined under a glass, it will grow for a long time; but if it be prevented from receiving a supply of pure air, it becomes unhealthy, and ultimately dies, on account of a change which takes place in its composition from the growing plant. Air which has passed through the lungs, is deprived of the property of supporting life or combustion; and the same change takes place in the air where growing vegetables are confined. This may easily be shown by putting saxifrage into a bottle, by which the air becomes vitiated, as may be shown by transferring it into jars, and making it the subject of experiment. As oxygen is destroyed by animals, it was a favo-

rite opinion that vegetables live upon the gas that is formed from it, and expel oxygen to replace that which is exhausted in the first instance. This was first suggested by Dr Priestly, who, however, so far from insisting upon it, did not offer it as his own. The theory was so plausible that it was generally adopted, though few ventured to examine it; and the notion of course prevailed, that what was poisoned by animals was purified by plants. The same effect is however, produced on air by plants as by animals, in the conversion of oxygen gas into carbonic acid, formed of the former gas united with carbon, or the basis of charcoal. This experiment is so simple, that it may be easily performed; and similar results will take place in hundreds of experiments, not only with plants in pots, but from introducing branches under the receiver. So far from rendering fit for respiration that which has been unfit, the plant uniformly dies; the atmosphere in which it grows having a powerful effect in destroying it. Plants are incapable of existing in any kind of air which will not support animal life or combustion.

Some have asserted that plants possess a twofold character: that under the influence of the sun they respire carbonic acid and throw out oxygen, and at night the reverse takes place. This opinion it is, however, difficult to support, as nature never takes the trouble of a twofold operation when one is sufficient for her purpose; and it implies that there are two sets of vessels which act alternately, or that the vessels are provided with different appurtenances at different periods—that what is rejected as poison in one twelve hours, supports the plant the remaining portion of the day.

The late Professor Burnett supposed two different operations in plants, one by day and the other by night; one of which was constantly going on, whilst the other required the influence of the sun to bring it into action. He supposed, that in the day they absorbed moisture from the leaves, and during digestion threw out oxygen gas; that, as with animals the taking in of food is suspended during the night, the functions of respiration alone go on, as in the former case, contaminating the atmosphere. These opinions were, however, only supported by a few ill-conducted and inconclusive experiments. Every grower must have noticed that plants grow a great deal more in the night than in the day; and how can this be reconciled with the opinion that digestion only takes place in the latter? This is more particularly the case with tropical plants; the leaves,

as well as the stems of the banana and plantain, being known to increase three or four inches in size.

That light possesses a great influence upon plants, is evident from the fact of their always turning their leaves towards it. It is the upper surface which is directed towards it; and this disposition is perhaps given to prevent the stomata from being influenced by the sun's rays, and thus rendered incapable of performing the functions for which nature intended them. If we anoint the upper surface of a leaf with oil, it soon dies; being fatal to insects in a similar way, by filling up the pores of the bodies through which they breathe. The leaf is affected in a similar manner; and water will have a like effect in injuring or destroying their organization; if we drip water constantly upon a plant it will be destroyed. The leaves of trees growing naturally near the ocean, have a covering to preserve the foliage from the spray of the sea; and those which do not have it, when placed in these situations, soon die. Trees may often be seen inland, many miles from the sea, with their foliage blackened, owing to the spray being carried so far by a strong wind. On one occasion, between Canterbury and Dover, the only vegetables that were witnessed green were the turnips, which, like cabbages, have their origin near the sea-side. Where the texture of the leaves will not repel the salt spray, the salt will lie and perish the plant; but where covered, the plant resists it. On cabbages the drops of rain may be seen like globules of quicksilver; if it were not for this repelling power, the water would lay too long and impede respiration. Plants grown without light are much less solid than others; and they contain a less proportion of carbon, growing luxuriant but blanched. Gardeners avail themselves of this property to correct those plants which are hurtful or have a bad taste; and what are noxious, are thus rendered wholesome. Green being produced from yellow and blue colors, it is possible that the blue is produced by oxygen, through the action of light, as other plants are pale yellow. Cultivation has a very great effect in modifying plants; but it generally renders them far less luxuriant. In variegated plants, the functions are far less active than in those of natural growth, and not near so vigorous.

The blood of animals passes through two extensive series of vessels, in which those changes take place, fitting it for use in the animal economy. Although we have not actually discovered two series

of circulating vessels, or a centre of circulation in plants, we are no less certain that there are two sets of vessels in the leaves; and analogy leads us to suppose, that they are for the same purpose as those of animals. Some curious phenomena connected with this are observable in parasitic plants. A certain series of these grow on the pots of others, from which they appear to derive their nutriment. These are of a brownish or yellowish color; the leaves, instead of being broad, are but dry scales, and possess no effect when confined in air or upon oxygen; and no stomata can be detected by the microscope. We find a connection between these and the bark; and they appear to feed upon the elaborated sap which has gone through all the changes essential to vegetable existence. Others, the leaves of which are green, as in the misletoe, appear to be connected with the wood; and these may be considered as the two different descriptions of the blood of the plant. The mode by which plants derive their vitality from the soil, is the solution of nutritive matter by water. Those soils which are capable of imbibing or retaining water, are the most favorable to vegetation, provided they contain a proper quantity of that principle which gives solidity of parts. Carbon is not acted upon by the fibres of the root in its solid state or combined with the soil; but, as experiments on many kinds of manure prove, by imbibing the oxygen of the atmosphere, and forming carbonic acid gas, which is then absorbed by water and conveyed into the roots. Perhaps the greater growth of vegetables in the spring is, that the heat of the sun promotes the decomposition of organic matters, whilst light electric rains descending, convey the carbonic acid formed into the soil; and it may probably be accelerated, that organic tissue is rendered more active from the dormant state in which it has long lain. The whole of leaves are formed of double masses of fibres, the upper series being connected with the medullary sheath, and the lower series with the inner part of the bark. On the latter are deposited the resin, sugar, and other substances which plants secrete; and both probably act the double part of veins and arteries in animals, the upper series being analogous to arteries, and the lower series to those vessels which carry out blood to all parts of the system.

The early portion of the lecture was accompanied by several experiments illustrative of atmospheric air, and the action of vegetation upon it.

The next subject to which I propose to draw attention, is the structure of the flower. The most important parts are the calyx or flower cup, and the corolla enclosed in it, and those parts are called the floral envelopes. There are also a great number of minute organs, which are most important parts of the plant; these are the stamens and pistils, which perform peculiar parts in the functions of the flower. These complicated and interesting parts of the flower are only extensions of the branches; and the varied parts of the flowers may easily be known by an attention to the formation and parts of the leaves which produce the various modified parts of the plant, the calyx, corolla, stamens, and pistils. The organs of reproduction derive their origin from the axils of the leaves, the points of connection between these and the stem. In those where the vital energy is the most powerful, the plants produce flowers at the axils instead of the flower-buds, as in the expansion which produces the flowers of the narcissus. These are an intermediate grade between the leaves and the ordinary parts of the plant forming the flower. It is a law of vegetable development, and a fixed rule of nature, that the leaves are never developed side by side in the same plane, but opposite each other, or in other positions above or below. The leaves are either alternate, or of opposite characters; and this constitutes a division of natural families. In the examination of plants minutely, we shall find that the alternate or opposition in the disposition of leaves will alter; the cause of this is, that the alternate interlobes, or vacant spaces which are abortive, are occasionally developed as in the luxuriance of spring. The flowers of plants are composed of a series of metamorphosed leaves, developed on the flower stalks, and assume the forms of stamens, pistils, &c. When they are destitute of corolla and calyx, the flowers are called naked. The calyx is sometimes called the perianthium, and occasionally assumes a brilliant hue, as in the fuchsia. Where the parts of the calyx are united together, it is called monosepalous; but where divided, polysepalous. Strictly speaking, however, there is no monosepalous calyx, because every one is composed of verticillate leaves. The metamorphosed leaves also form the corolla, and it is distinguished as mono or polypetalous. If in any instance the sepals of the calyx are opposite the petals of the flower, it is occasioned by the abortion of a series, which we are in many instances able to trace. In some flowers, intervening between the petals and

sepals, are other organs, which were called by Linnæus nectaria or honey cups. These were supposed by some to be the organs which secrete honey; they are the blue parts of the passion-flower, and are called by botanists the corona. They are intermediate transformations between the petals and the stamens, and in some are more or less perfect: they may be regarded as a series of stamens destitute of tips. The foot-stalk of the leaf may be compared to a stamen; and its blade bent and doubled in many forms into a case, will readily explain the different forms of the flower.

Double flowers are larger flowers, the result of a greater development in the plant. In the water lily, the number of petals is very considerable; if we examine one when in flower, we can trace the regular change from the white petal to the yellow stamens, the latter being only partially folded leaves. In the centre, the color is perfectly developed, though the other parts are not; the yellow color being owing to the partial development of pollen. This pollen is a fine powder, escaping from the vessels which contain it, as if they were opened by a spring and scattering all around. The pollen is composed of a thin cellular membrane containing a fluid or mucous matter. On examination by the microscope, it will appear as if there were a certain number of bodies floating in every direction, circulating as if alive. The organs in the centre are called pistils, from an architectural term. They consist of the ovarium, the stigma and the style: the ovarium becomes the seed vessel, and developes a certain number of minute bodies called ovules. The modified leaves, forming the pistillum, unite at the margins, at a distance from the middle rib, and form a cavity by the folding in of the leaves.

The seed may be called the egg of the plant, and is produced from the reciprocal action of the stamens and pistils. A communication must always take place between the pollen of the anthers and the stigma of the pistil, before reproduction can take place. At the time when the tips of the stamens burst, the tops of the stigmas are always moist, sometimes to such an extent as to assume the form of a drop of water, more or less according to the nature of the plant. It was conceived by the earlier botanists, that the dust adhered to the water on the pistils, and that the minute particles dissolved in this secretion were taken up and transferred to the seed; but the mode by which its impregnation takes place is altogether conjectural.

It is supposed, by Adolphe Brogniart and others, that wherever the particles come into contact with the fluid, they extend into a tube, and that these tubes penetrate into the basis of the pistillum, even to the seed itself, where we can always detect a minute hole; and he even states that he has seen the tubes. In the present state of botanical knowledge, this inquiry, however, is more curious than useful. It is found impossible to impregnate certain seeds with some others; and this is probably owing to the difference in the size of the pollen, which varies greatly, some also differing in form—the globular form, however, being the most common. It may be owing to the tubes being too large; and it may also here be stated, that it is not always the largest flowers or anthers that produce the largest pollen. The advantage derivable from this knowledge, is in the culling of anthers, and sprinkling pollen to produce different varieties in plants, which produce individuals resembling neither of the parents. It is thus that we obtain all the immense varieties of tulips, there being only two or three from which originally they are all derived. In the same manner the countless number of dahlias are derived from but two or three varieties; and it is undoubtedly from the impregnation of the seeds of one plant with the pollen of another, that plants are thus multiplied. Nature often acts by these means; bees and flies, when feeding on honey, rubbing against one flower, there depositing the pollen they have collected from another. It is, perhaps, from this circumstance, that curled parsley produces the wild, from having mixed with its flowers the pollen of the wild parsley: the golden pippin may thus turn into the austere crab. From hence arises the uncertainty in the cultivation of culinary vegetables and fruit trees. Mr Ray mentions a singular instance of this, in which, from an ignorance of this botanical fact, one John Behal, a gardener at Brentford, suffered to a considerable extent. He had sold large quantities to many individuals of cauliflower seed, which, however, when cultivated, turned out to be Brassica Longiflora, or Brussels sprouts, and for which he was tried in one of the courts of law, and condemned to pay a considerable sum, for what was considered an imposition. The fact of the impregnation of plants in this manner, was not a discovery of Linæus; and the theory of the propagation of plants was for some time a matter of considerable dispute. Tournefort, Adamson, and others, treated these views as chimerical. The first experiment that decided it was made

at the Royal Academy of Berlin. The palm tree is produced from male and female trees; and for thirty years, amongst a considerable number of these, there was not one fruit-bearing tree. A male plant of the same genus was brought from Leipsic and planted near; upwards of one hundred young fruit were now produced, and the following year eleven young trees made their appearance. This circumstance, although not generally known, seems to have been understood by the ancients, who, knowing some trees were barren, planted others near to make them fertile. The Arabs always act the same in their date plantations; and Knapper relates, that in an invasion of the Prince of Bassorah, he threatened to destroy all the male date trees.

A remarkable change is produced in the formation of double flowers—the modified leaves which form stamens are most liable to this change. A curious practice in gardens has arisen from ignorance in the cultivation of the common stock, to plant one single and two double ones in the same pot; which is with the belief that the latter will cause the former, by their presence, to produce flowers. In looking for double flowers, we should mark those where there is the slightest tendency in the stamen to dilate, for it is a chance that the seed thus produced will turn out a double flower. This, which is a disease, may be perpetuated, and even carried to a great extent, in the offspring. Very few plants are naturally double flowers; but the art of man in their formation, as in every other attempt to improve the works of Nature, introduces monstrosity where she gave beauty. Generally speaking, double flowers are more luxuriant; they lead likewise to the discovery of the functions of nature. Every lover of nature must take delight in the permanent existence of many flowers which disclose their beauty, and then raise regret at their momentary duration; as well as in the creation of new forms. This lengthened duration will readily take place, and flowers of but two or three days' beauty, if the stamens are cut off at the tips, may be kept for a week or fortnight in perfection. It is the same in insects, as the females of many butterflies live for an indefinite period if the male is kept away; and the same extension of life takes place as in plants.

In the last lecture we explained the generally received theory that flowers are modified branches of the plant—that the whorls first de-

veloped, form the calyx, next the corolla, then succeed the stamens, and at last the pistils; the form being altered so that they may perform the various functions of the flower, the pistils also altering more or less, from their impregnation by the stamen. Frequently, the calyx unites with the base of the pistil forming fruit; but in every instance, it is the base itself which produces it. The pistil consists of three parts, two of which are essential to its formation, whilst the third is only subsidiary. The ovarium it is which developes the fruit; the long process is called the style, and the knobbed extremity the stigma. The stigma and ovarium are the two most important parts, the style being sometimes wanting; the use of the latter is only required to elevate the pistils to a level with the stamens, enabling the powder of the anthers to light upon it; as, although the dust is thrown out, it would probably descend without fertilizing the seed. The anther, or tip of the stamen, is a folded leaf, the margins of which are brought in contact with the middle rib, thus forming two chambers which contain the pollen.

All the parts of the plant and of the flower receive nutriment before the pistils, the consequence of which is, that if not sufficient for them, they fall short in the development; and some flowers, which have nine or ten pistils, have only one developed. This is the case with the common pea where the nutriment developes only one pistil instead of five. The number of pistils is far from constant in plants of the same species; and this irregularity is the most usual in the plants of the class Icosandria. During the progress to fruit, a great change takes place in the modified leaves, which form the cells of the ovarium; some are obliterated, others which were distinct become united, whilst some which were in union become separate: where the fruit has several cells, there is little difficulty in recognising the number of leaves which form it. In the interior of the apple are five cells, each formed of a modified leaf, and having a fleshy development around. Where the margins of the leaves meet together in the fruit, a thickening of the texture takes place, forming the placenta, and to which the seeds are attached. If we search for the seeds of the apple, we shall find the points of the pips, attached to the middle core in a particular part of the cell where they all meet. Wherever the placenta is perfectly developed, it runs from the apex to the base; and as in the pea, the part where the seeds are developed, is always the thickest part of the cell. It

is only where the part is thus thickened, that the seeds are capable of being produced, or of attaining maturity, as this is a storing up of nutriment required for its support after impregnation: where but one seed is developed in a pod, it arises on the margin, and there is not a thickening of the whole length. The indented line upon some fruits, as the nectarine or cherry, points out the part where the junction of the leaf takes place. The stigma always presents the same number of lobes as the leaves forming the fruit: the poppy has no less than twelve divisions to the stigma, and it shows twelve parts.

The partitions of the pistil are not always compact together, but sometimes, although united at first, they do not remain so; and sometimes they shrivel up altogether. Sometimes one cell of the ovarium is formed of several united pistils, from which they become abortive. Hazel-nuts and filberts have but one cell, although when examined and carefully dissected in an early state, the rudiments of three kernels are very perceptible; but nature has so arranged it, that one takes up the nutriment from the others, which stops their growth. Another instance is afforded in the cocoa-nut, which originally contains three cells; it bears three marks and three apertures through which nature meant the roots to force. Over this part the skin is very thin; but of the three only one comes to perfection, which pushes aside the others. It is only that aperture which is over the successful root that is thus thinly formed, which may easily be perforated, whilst the others are more difficultly so: the same rule takes place in many other fruits, where a single seed takes the lead and obliterates the others. Fruit has generally two sutures, as in the pea or bean, which are called the ventral and dorsal. It is here where it generally opens to discharge the seed; but in some the fruit does not thus open, where the seed vessel decays before the seed is set at liberty. There are two forms of opening—the one called loculicidal; and the other, scepticidal.

The production of the seed is the perfection of vegetable physiology; it is the ultimate object of the growth of the plant, and it seems as if nature had produced that beautiful apparatus, the flower, for no other purpose. The seed is divided into three parts; there is the external covering or skin, consisting of two or more coats, bnt always two, and enclosing the kernel. This last is a nucleus of two distinct bodies; first the albumen, and second, the embryo or

the future plant. The albumen is the nutritive matter for the support of the plant; many ripe seeds contain no albumen, the embryo occupying the whole portion. Here nature has provided other means for supplying it, in the absorption of nutriment from the soil. Every seed in a detached state exhibits a scar, which in the horse-chestnut may be recognised as a black patch; this is the point of union betwixt the seed and the vessel containing it: it is generally termed the base of the seed, though the apex is not always opposite to, but often very near the scar. In all seeds we find a very minute aperture; in some sufficiently large to be recognised by the naked eye, but which is not then sufficient to admit the point of a needle, through which the impregnation of the seed by the pollen takes place, and which is usually known by the name of the foramen. To botanists the observation of this aperture is valuable, as indicating the part where the radicle of the future plant is situated. The point of union at the lobes of the seed, is the growing portion of the plant; one portion of it is the plumula, which developes the leaves, and the other is the radicle of the young root. Where they join, the vital principle is situated, which is commonly termed the corculum or little heart. The plumula and the radicle, although very minute, never invert their functions; and in this way, the seeds of a flowering plant differ from those of non-flowering ones, where whatever part touches the earth forms the root, and the other part the stem. In the seeds of a flowering plant this does not take place as the functions cannot be inverted. A most important distinction in flowering plants is derived from the structure of the seed; where there is only one lobe it is termed monocotyledonous, but where two, dicotyledonous. The bean and pea are instances of the latter, and throw up two seed-leaves; whilst the onion is of the former throwing up but one. There is no part of botany more important than the evolution of the seed; the first step is called germination, and takes place sooner in some plants than in others. In wheat it takes place in from twenty to twentyfour hours; in barley, in seven days; in common garden beans, from fifteen to twenty days; and in parsley, from forty to fifty days, and in some instances even three months; from which torpidity has arisen the common saying "that parsley seed goes nine times to the devil before it comes up." The peach and some others are much longer; but nature has provided many with a fleshy covering, that softens the kernel, and enables germination to take place sooner.

The necessary agency concerned in the growth of plants is that of temperature, water and air. It was formerly supposed that light was also necessary, but experiment show that the growth of plants is retarded instead of advanced by exposure to it, and Nature has so ordered it that the seed lies buried under the ground to preserve it against this influence. Water is indispensable; and is equally the solvent of nutriment for animals and vegetables. Atmospheric air is equally essential, and oxygen gas seems to be the great principle of excitability to all organic matter: it gives the red color to the blood, and effects a similar excitability to vegetables in germination. We have been told that peas will grow *in vacuo*, but the experiments of Homberg, in the latter part of the seventeenth century, are by no means conclusive on the subject of the growth of plants, under circumstances in which they are deprived of atmospheric air. He stated that under the exhausted receiver of an air-pump, the seeds of lettuce, parsley, and cress, would come up, but that they would perish soon afterwards. It may, however, be easily understood that this experiment is not conclusive, from the circumstance that it is not possible by an air-pump to obtain an actual vacuum, as the air becomes more rarified and extended in its bulk; and that some seeds of less excitability would last longer under such circumstances than others. When the seed germinates a quantity of sugar is formed; this attracts the birds, which are so destructive to the seed when it begins to sprout: oxygen is required to produce this change. In malting, the same process of making sugar occurs—the seed being made to grow, and then the growth is stopped. When the seed is first germinated, mechanical and other changes by moisture are developed. The influence of light has been supposed to influence germination, by its decomposing carbonic acid gas, and hardening the seed; but experiments show that it will not harden—that plants will germinate—and that no less sugar is formed when they are exposed to light. This experiment may be easily shown, by confining mustard seeds in a closed glass; and the carbonic acid gas produced may be recognised, by its immediately extinguishing a lighted taper introduced into it.

The seeds of some plants are very numerous. Ray calculated that from one to two thousand tobacco seeds would not weigh a single grain, and Woodward pointed out that the seeds of the thistle are still more numerous. The means that nature has provided for

their dispersion is not the least wonderful part of her economy. Some possess wings, as in the feather or cotton grasses, and the dandelion. The feather grass is furnished with a long style at a particular angle, acted upon by the slightest current agitating it. It grows on the summit of high mountains, and is driven to the light crevices of the rock or loose soil, where the wind driving it round, it perforates as with a screw, the bottom part possessing the power of an augur to perforate the earth, and place it in a firm position. This is not, however, the only instance in the economy of seeds of the adaptation of means to an end. Many, as in the cocoa-nut, possess a firm and light fabric, to buoy them up in the water against the waves. This tree grows near the ocean shore, and the seeds become wafted for many miles, from island to island, and even continent to continent, this fabric also preserving the nut against the action of the sea-water: Mr Foster, who accompanied Captain Cook in his travels, gives an account that they are met with in almost all the low coral islands. Man has annihilated many animals, and species which formerly had existence are now extinct; but vegetation mocks all his labors at her destruction, whilst she is undermining all his fabrics, and reducing his proudest structures to their original dust—the minutest mosses being constantly at work for this purpose.

The present, the learned Professor observed, concluded the proposed course, which had necessarily been restricted on many subjects deserving of more lengthened notice; and he would now offer a few observations on the study and utility of botany. Many regard it as a study of mere amusement—let it be so. They suppose that the study gives very little satisfaction, that the form of plants is simple, and their organizantion very minute,—such may be the case. We are, however, daily acquiring more knowledge upon this subject and it is not forms alone which are the objects of the botanist's study. It has produced many, and those the most important, effects upon chemical and mechanical science. Many errrors arise from a misconception of effects; nature to be comprehended must be read in detail—and he who binds himself to one study is like the geologist who frames a world upon the model of his native mountains, or the geometrician who would calculate a polygon from one of its angles. The influence of vegetation may explain many changes which have taken place. Many assert that the obvious change and

amelioration of the climate of our own country is produced from a very distant cause—the felling of forests in North America. It is only by studying it in all its connexions that we can properly appreciate knowledge or advantages derivable from it. The history of mankind is in some respects connected with botanical science. If we descend into the depths of the earth, we shall find the floor covered with numerous species of plants not now known to exist, which furnish undeniable evidence of a world gone by; and give proofs of our own insignificance, when we view traces of the bounty of Providence to myriads gone before. These collateral branches are of very great importance; and those who pass them by, take but a very scanty view of the subject. It may be urged, that the busy pursuits of a laborious profession, and the incessant toils of life, would afford little time for its cultivation; but so little do we know of the subject, that almost every one may devote his time to acquire new knowledge, and add to the already realised stores. It is not the water of the Mississippi that makes the ocean, but the thousand tributary streams that flow and add their contributions to its course; the snow that falls and caps the mountain in eternal winter, is not the produce of one but many seasons. The skilful artizan sets the machine in motion by rubbing off the grains of sand; and the rill that sparkles from the mountain may become a mighty cataract. So it is with the cultivators of science; and a host of philosophers are forgotten when the names of Newton and Linnæus survive. The humblest votary can confer an advantage upon the science which he cultivates, and trace new views of Providence and its beneficence.

ART. II.—*On Improvement in Horticulture. Read before the Horticultural Association of the Valley of the Hudson, by* J. BUEL, *on the 28th Sept.* 1838. *Published at the request of the Association.*

RECENTLY notified that the gentleman selected to address you on this occasion, would fail in the performance of that duty, I have hastily prepared some remarks on the objects and promised utility of this association, which I beg leave to read.

Our first parent was placed in a garden, and commanded "to dress and to keep it;" thereby indicating, from the highest authority, that the garden is pre-eminently fitted for the performance of our highest duties, and the gratification of our purest pleasures. This construction of the divine precept, is in accordance with the opinions of every enlightened age and nation. The garden has, by general consent, ever been considered a source of utility and of healthful employment—the best theatre for concentrating and displaying the beautiful and wonderfully diversified varieties of foliage, flowers and fruits of the vegetable world—and a school for civilizing and socializing man, and of inspiring him with love to his creator, and good will towards his fellow-men. Nor does the injunction seem to refer to the mere gratification of animal appetite;—for we read, that "out of the ground made the Lord God to grow every tree that is pleasant to the sight, and good for food."

Gardening and Horticulture are in a measure synonymous terms. Gardening is divided into branches. It "is practised for private use and enjoyment," says Loudon, "in cottage, villa and mansion gardens; for public recreation, in umbrageous and verdant promenades, parks and other scenes, in and near large towns;—for public instruction, in botanic and experimental gardens;—and for the purposes of commerce in market, orchard, seed, physic, florists and nursery gardens." In all of these departments of Horticulture, we have great room for improvement, and great need of it; in all of them it is the object of this association to promote improvement, and in all of them they will effect improvement, if their efforts are seconded, as I trust they will be, by the intelligence, the taste and the public spirit of the opulent gentlemen of our valley. It is the object of the association to introduce into this—our Eden—"every tree that is pleasant to the sight, and good for food"—to introduce and to disseminate

widely, all that is useful and ornamental in garden culture—all the fruits, flowers or culinary vegetables, that are worthy of culture, whether of foreign or domestic origin, which our soil will grow, and our climate mature.

It is not enough that many of the choice productions of the garden should be found with a few of the opulent. Those that are excellent should be known and disseminated widely. We should do good to others, if we would know the pleasures that spring from a generous philanthropy. By bringing these productions together at our semi-annual exhibitions, showing and comparing them, we can determine their relative merits, their proper names and synonymes,—can publish the result of these comparisons, and recommend and disseminate those which possess the greatest intrinsic merit. "All men will eat good fruit that can get it," says Sir William Temple; "so that the choice is only, whether one will eat good or ill;—and of all things produced in a garden, whether of salads or fruits, a poor man that has one of his own, will eat better than a rich man that has none." We seek to extend the luxury of good fruits to all, in order that the poor man who has a garden, may eat better fruit than the rich man who has none.

As I have remarked, gardening is co-existent with man. Its early history is too obscure to be traced. Suffice it to say, that in the best days of polished Rome, it was cultivated with taste and assiduity, and ranked with the fine arts; and that with these it sunk to obscurity in the downfall of that empire. All of the art that survived the shock of Vandalism in Europe, was preserved and cloistered with the monks during the dark ages. With learning, it revived first in Italy and Holland; to which countries many exotics, and a taste for cultivating them, were introduced during the crusades. It was not until the reign of Henry VIII. in the beginning of the 16th century, that gardening attracted much attention in England. Previous to this time, cabbages, and even pot herbs, imported from Holland, constituted luxuries, found only on the tables of the opulent. During this reign, apricots, melons, herbs and esculent roots, were first introduced into the royal gardens. Among the new plants of that day is mentioned "the lilacke trees, which bear no fruite, but only a pleasant flowere." Improvement in Horticulture was greatly extended under Elizabeth and Charles I. During the reign of the latter, the first work upon English gardening was

published by Parkinson, under the title of " a garden of all sorts of pleasante floweres, with a kitchen garden, of all manner of herbs and roots, and an orchard of all sorts of fruit bearing trees," which is yet quoted with high commendation.

About the middle of the 17th century, several valuable publications upon Horticulture appeared in England and France ; and in 1734 Philip Miller published his celebrated Gardeners' Dictionary, an original work of merit, which attracted general notice, and gave a new impulse to improvement. British and other foreign works upon gardening have been greatly multiplied; and improvement has kept pace with the increase of wealth and refinement, until horticulture has attained to a high state of perfection, as a science as well as an art in most of the civilized countries of Europe. No gentleman of opulence or taste there, deems himself fitted to enjoy the comforts and luxuries of life, without his garden. Horticultural societies have been every where established,—princes have been competitors in them, for honorary rewards ; useful and ornamental plants have been sedulously collected from every quarter of the globe and innumerable new varieties have been added to the catalogue by the skill and industry of man. Within a few years, the splendid Encyclopædia of Gardening, has been added to our horticultural works by the indefatigable Loudon, professing to give all that is interesting in the history, and all that is useful in the science, or in the practice of gardening. The society of London established a garden in 1818, and sent agents into every quarter of the world, to collect whatever could be found useful or ornamental. One of these agents after traversing the United States and the Canadas, spent four years on the Pacific coast of our continent, exploring the country from California to the mouth of the Columbia, and thence across the continent to the Hudson Bay Factories, in collecting rare plants and seeds. In a subsequent voyage to the western border of our continent, this indefatigable agent was destroyed by a wild bull, upon one of the Pacific Islands. Yet the name of Douglass will be perpetuated in the cognomen of several new plants which he first brought into notice. Some idea may be formed of the extent of this society's labors and usefulness from the facts, that in its catalogue of 1830. are enumerated as growing in its garden, 3,400 varieties of hardy edible fruits, and 58 varieties of nuts, exclusive of 89 varieties of the fig, 182 of the grape, 56 of the pine apple, and 131 of the melon ;

nearly all of the four last named being cultivated in houses, with the aid of glass and artificial heat,—making an aggregate of about 4,000 varieties of fruits, which administer to the sustenance of man, independent of ornamental plants, which exercise a benign influence upon his mental enjoyments. The fruits in this garden have been classified, as it regards size and quality,—their form, color, use and time of maturity noted, and their catalogue thus affords a guide in the selection of fruits for the climate to which they may be transferred for cultivation.

Enterprise in the acquisition of new fruits, and new plants, has not been confined to the London Horticultural Society. European governments, Horticultural societies, opulent amateur florists, and professional nursery-men, have sent their agents into remote parts of the world ;—and the towering mountains of Asia, the Isles of the Eastern Archipelago, the burning sands of Africa, the inhospitable regions of Siberia, and the wilds of America, have been alike explored, for valuable and rare plants, to subserve our wants, and administer to our pleasures. The fruits of all their laborious researches lie within our reach, and a prominent object of this association is to transfer to the valley of the Hudson such of them as may be found to administer to the wants and comforts of its population.

We are particularly indebted to the Flemings, for a great number of excellent new varieties of the pear. To the labors of Dr Van Mons, of the University of Louvain, an amateur pomologist, we are indebted for about 400 new and excellent varieties of this esteemed fruit, some of which are in eating through the circle of the year. The late Mr Knight, till his death, president of the London Horticultural Society, also produced many new and excellent varieties of fruits by artificial fecundation. Samples of several of the new fruits thus produced by Mr Knight and Dr Van Mons are now exhibited upon your table.

From the comparatively restricted means of a new country, gardening has with us been limited to the useful, seldom aspiring to taste and elegance. But even in the useful branch we have ample room for improvement. We have no great central point for collecting and comparing the indigenous fruits of our country, and for disseminating the excellent through our land. Of the apple, plum and peach, it is believed we have as fine native varieties as are grown in the world, and yet they are but partially known and but partially

enjoyed. Individual exertions are too limited and feeble to effect the desired object. It can only be done by the combined exertions of many, influenced by a common impulse, and directed to a common end. In this age, no great good can be effected in any branch of public improvement, without the concentrated exertions of associate bodies The garden culture of fruits and esculent vegetables, has hardly yet commenced in many districts of our valley, while in other districts the culture is but imperfectly understood—the relative merits of different varieties are not appreciated, are their value, in promoting the health, economy and comforts of a family, unknown or disregarded. Few of the fine varieties of fruit, or of the other choice products of the garden, are seen in passing through our country. Yet twenty years has done much to improve our Horticulture; and we have abundant reason to anticipate far greater improvements in the twenty years to come.

How few of our garden products, which are now considered, at least in imagination, indispensable to our wants, and the natural products of our country. Hardly one in twenty is indigenous in our soil. Our fathers have been collecting them, and we have been collecting them, through the lapse of centuries; and yet, how comparatively small is our stock compared with what Providence has provided for the wants and comforts of man. We are strangers to many that grow naturally in our country. And as to varieties, nature and art are every year multiplying to them, under the same laws that multiply the breeds of our domestic animals, and that are diversifying the human countenance. Did our gardens contain only the plants that are indigenous to our country, the supply would indeed be scanty. But Horticulture has laid almost every clime, and every country, under contribution, to administer to our wants, and to gratify our senses. Most of our grains, and a large portion of our fruits, and esculent roots, derive their origin from other countries. The greatest part of them came to us from Great Britain and Holland, which received them from Italy, Italy from Greece, and Greece from Asia. Rye and wheat are indigenous in Siberia and Little Tartary; rice is the natural product of Ethiopia; buckwheat of Asia; kidney beans of the East Indies; the beet and onion, of Spain and Portugal. Peas came from the South of Europe, artichokes from Brazil, peppers and cucumbers from India; the egg

plant from Africa ; the tomato from South America ; the pumpkin from Astracan ; the ruta-baga from Sweden ; the Cauliflower from Cyprus ; and the asparagus from Asia. Our fruits originated in countries equally remote from each other. Without pretending to decide upon the disputed question, whether all the cultivated apples have originated from the wild crab, or whether any of our good varieties existed here when our shores were first visited by Europeans, I can say this much, that we have esteemed varieties of this fruit now under culture, which originated on the banks of the Po and the Danube, of the Rhine and the Oder, of the Seine and the Thames, and on the shores of the Baltic and Caspian. The peach came from Persia ; the plum from Syria ; the cherry from Pontus ; the quince from Austria ; the almond from Barbary and China, and the pear from Europe. Our pot-herbs and cultivated medicinal plants, are also most of them exotics ; parsley is from Sardinia, pursley from South America, nasturtium from Peru, thyme from Spain, sage from the south of Europe, savory from France, marjorum from Sicily, rhubarb from Asia, and balm from Switzerland. So also of our flowering shrubs and plants ; the pink, the daffodil, and narcissus, are from Italy, the dahlia from Mexico, the ranunculus and anemone, from Cappadocia ; the hyderange, balsam and camellia from China and Japan ; the tulip and hyacinth from the Levant : the tuberose from Ceylon, and our finest peonies from the "Celestial Empire." And of trees we are indebted to the north of Asia for the ornamental horse-chesnut, and to the Indian islands, for the towering ailanthus. These are but a small portion of the contributions which Horticulture has gathered from foreign lands, for our convenience and pleasure ; and every year adds to the list new genera, species and varieties. Providence seems to have apportioned its bounties among the different nations, as if to admonish them of their mutual dependence upon each other, and to excite in them a spirit of christian philanthropy and benevolence.

Private gardens of great extent and beauty abound in most of the countries of Europe, and they are maintained at a princely expense. In these not only hardy fruits and vegetables are forced to early maturity, by artificial means, but most of the tropical fruits are brought to perfection, by the aid of hot-houses and walls. Strawberries, in this way, are produced for the table in April, melons in May, grapes and peaches in June, and pine apples at almost every season. It is

assumed, that in Britain, a gentleman may derive from his garden, with the aid of glass and artificial heat, a more varied and richer dessert, throughout the year, than is to be met with on the most luxurious tables in any other country. And yet the summers of England are so cool, that the peach, grape, melon, &c., requires the protection of a wall or glass, to bring them to maturity ; and even our fine Spitzenburgh apple does not ripen well there without a wall. Gardens of this description, though generally on a limited scale, may be found in the vicinage of our commercial towns, and will doubtless be multiplied as we advance in wealth and horticultural improvement. These cases of high improvement, or rather extravagant refinement, in horticulture, are not mentioned as models for general imitation. They indicate an expenditure, which few here can prudently indulge in if they would. Yet where there is the ability, and a disposition to extravagant expenditure, it may be indulged in, in horticulture with advantage rather than prejudice, to public morals and public usefulness. The examples to which we refer, furnish models of improvement, which we are at liberty to adopt on any scale that shall comport with our desires and our means.

Public nurseries which belong to Horticulture, are highly useful to all communities in which they are located. They serve to introduce and concentrate the vegetable productions of every country, which are likely to subserve our wants or administer to our rational gratification. The interchanges which take place between those of Europe and America, are now managed with such facility, that a new fruit, or a new flowering plant, which attracts notice, and acquires value, on one continent, in a year or two becomes common in the nurseries of the other. The numerous horticultural periodicals of the two continents, make us early acquainted with whatever is new or valuable in either, and a single season serves to propagate and to disseminate the desirable plant on both. In this way we have been enabled to obtain the fine new varieties of Flemish and French pears, in many instances before they had fruited in England. The dahlia, in its natural single flower, was first introduced into France, in 1801, and subsequently into England. The skill of the horticulturist has since transformed ti into a double flower, and imparted to it all the colors and tints which are gratifying to the human eye. This ornament of the garden, which is now found at all our nurseries, is termed by common consent, " The King," as the

rose has been called the "Queen of Flowers." And as regards fruits—I was instrumental in bringing into notice, seven or eight years ago, a fine new apple, the *Jonathan*, grafts of which I forwarded to Europe. Five years ago I noticed it in the catalogue of the Lon. Hort. Society, with the names of many other of our local fruits which I sent, and also in catalogues from the Island of Jersey, and from Hamburgh. The stroat apple which I sent at the same time had produced fruit in 1830, in the Lon. Hort. garden, and was classed, as it deserved to be, among the first quailty of apples. The ailanthus was first brought to our country eight or ten years ago, by one of our consuls, from farther India, and it is now growing, I believe, in almost every state of the Union.

As having particular relation to those who depend upon market gardens for horticultural productions, for daily use, I take occasion to remark, that the quality of market garden productions depend materially on the judgment and liberality of the buyer. The object of the gardener is profit; and so long as the purchaser regards the price rather than the quality, he will continue to raise those varieties which give him the greatest products, which are generally those of inferior quality. The difference in the varieties of the same vegetable are manifestly great. This exists not only in their flavor, but in their nutritious and healthful properties: some varieties particularly fruits, being absolutely prejudicial, while other varieties of the same species, are highly conducive to health. In the potato, for instance, the difference in nutritive matter amounts to nearly a half in different varieties. Some of the coarser kinds yield but 14 and 16 per cent. of nutritive matter; while some of the finer kinds have given 28 per cent. And it is worth regarding, that good quality is almost inseparably connected with grateful flavor.

Horticulture as an employment, is highly conducive to the healthful vigor of the body, and to an agreeable exercise of the mind. The labor it demands, is neither severe in degree, nor monotonously tiresome in kind. It affords continued change and variety. The interesting objects of which it has cognizance,—as the germination of the seed, the development of the leaf, the growth of the stock and branches, the expansion of the flower, the swelling, maturing and gathering of the fruit, and the diversity of foliage, flowers and fruit, of the various vegetable families under its care, present to the mind, capable of appreciating and admiring the beauties of the vegetable kingdom, a succession of the most agreeable sensations.

As a recreation, Horticulture offers all the pleasures I have enumerated, without the fatigues which accompany its manual operations. What more grateful, to the sedentary and the studious, or to him who is habitually involved in the mercenary cares of business, than the relaxation afforded by a well kept garden, which exhibits to the senses the fragrance, the beauty, the order and harmony, which Providence has imparted to the vegetable kingdom. Here is nothing to awaken jealously, to excite distrust, to beget envy—or to inflame any of the grosser passions ; but every object is calculated to tranquillize the mind, to soften down the asperities of his nature, and to beget, towards his fellow beings, feelings of kindness, philanthropy and love.

As a science, Horticulture is rich in stores of intellectual wealth and usefulness. It embraces glossology, which teaches the names of parts of plants ; phitography, or the nomenclature and description of plants : taxonomy, or their classification ; vegetable organology or the external structure of plants ; vegetable anatomy, or their internal structure ; vegetable chemistry, or primary principles of plants ; vegetable pathology, or the diseases and casualties of vegetable life ; vegetable geography and history, or the distribution of vegetables, relatively to earth and to man ; and the origin of culture, derived from the study of vegetables.

It also embraces the study of the natural agents of vegetable growth and culture,—as earth, soils, and manures ; the agency of light, electricity, heat and water, in vegetable culture, and of the atmosphere in vegetable development.

Whether we regard Horticulture as an art, or a science ; whether we consider it as administering to our wants, convenience and pleasures, or as promotive of health and useful knowledge,—it has high claims to our notice and regard.

I present upon your table, for examination, gentlemen, more than one hundred named varieties of the apple snd pear, collected from my grounds, which twenty years ago were a barren waste ; and I might have added many others of doubtful or inferior character. Those presented have all been recommended as superior fruits, at the season of maturity, either for the dessert, the kitchen, for preserves, or for cider. They are the natural products of the northern and middle states, of Canada—and of Russia, Germany, France, the Netherlands, and Great Britain. They include of course only late autumn

and winter varieties. Yet these fruits form but a small portion of the kinds which are to be found in our valley—much less in our country. Though we have a great many good kinds, there must be but comparative few that can be denominated *excellent* or *best*. The only way to determine which are the best, is to bring the different varieties together, and to judge of them comparatively, at the season of their maturity. How desirable it is, that when starting in our pomological career—when selecting the fruits that are to administer to our enjoyment and our profit, through life, we be able to select the best kinds? But who is now a competent judge in these matters? What individual knows the comparative merits of half or a quarter, of the fruits which abound in our land? Not one among us, I venture to say. How shall we then acquire the requisite knowledge? We have at present no competent guide to direct us in the selection. Individual effort is incompetent to the labor of classifying and describing all our best fruits. It can only be effected here, as it has been done in England, by the joint efforts of an association—by bringing together the various kinds, testing their qualities, and establishing a standard of their relative merit, for the various uses for which they are adapted. This subject is so deeply connected with the comfort of all classes of our citizens—of the buyer as well as the cultivator of fruit—that I venture to recommend it to the early attention of the association.

The introduction of new and valuable varieties of fruits, seeds and ornamental plants, from different sections of our own country, as well as from the old world, should also engage our early attention. Many facilities present for effecting this. First, by a correspondence, and interchange of plants, seeds and fruits, with horticultural associations at home and abroad. Secondly, through the depot established at Washington, under the direction of an enthusiastic friend of rural improvement, H. L. Ellsworth, Esq., the commissioner of the Patent Office. Thirdly, through our naval, commercial and travelling citizens. Our corresponding Secretary, who has tendered his resignation in consequence of being about to take up his residence for some years in France, has kindly tendered his services in this behalf—and his services there in forwarding the objects of the association, may be rendered extensively useful. After all, much, very much, will depend upon our individual exertions. If we show a spirit to go ahead, and to be useful to the community, assis-

tance will be tendered from every quarter. But only those who *do* exert themselves, can, or ought to expect assistance from others. We must put our own shoulders to the wheel, before we can call upon Hercules. We *can* render this association pleasant and useful to ourselves, and highly beneficial to the public, if we but resolve to do so. But unless we set out and persevere, in the resolution to do so, we had better suffer the association to die in embryo, and to forget that we had the ambition to be useful in promoting horticultural improvement, but lacked the resolution and the spirit to carry out our laudable design.

In conclusion—to the gentlemen who have interested themselves in getting up this exhibition, and particularly those of a sister state, whose contributions of superior fruits and flowers afford the strongest incentive to perseverance on our part, I feel myself authorized to tender the grateful acknowledgments of the association. A multiplicity of circumstances, and I may say of misapprehensions, combined with protracted bad weather, have tended very much to diminish the interest of our first exhibition ; and yet I believe I may venture to say, that there has never on any occasion, been collected in our state, a greater number of excellent varieties of fruit,or finer samples, that has been exhibited on this occasion ; and although the season has been highly unpropitious to the floral department, yet the exhibition of fine dahlias, the favorite flower of the season, has been peculiarly brilliant. We have no reason to despond, but much to induce perseverance and renewed exertion. We have laid the foundation of improvement in that branch of industry which administers largely to the wants and elegancies of life. We can rear the superstructure. We can *deserve* success, though we cannot *command* it. And even the high satisfaction of doing this, is a consoling, if not satisfying reflection, to him who derives pleasure in laboring for the public good.

Art. III.—*Cultivation of the Strawberry.*

The number of varieties of this delicious fruit enumerated in catalogues, are very numerous. The late President Knight considered them all as having originated from one species, while others regard them as properly divisible into several species. Passing from the notice of these, it may be useful to cultivators in this country to give brief description of the different classes into which the numerous varieties are divided. Mistakes in names are frequent, and this may assist in rectifying them.

Class I, includes *scarlet strawberries*, and the general character is thus described by Loudon: — "Leaves nearly smooth, dark green, of thin texture, with sharp pointed serratures; the fruit mostly of small size, and bright color, with the seeds more or less deeply imbedded between ridged intervals; the flavor acid, with slight perfume." Examples, Roseberry, Methven Scarlet or Methven Castle, Old Scarlet, &c.

Class II. Black Strawberries. — The General character is, "leaves rugose, (or swollen between the veins,) pale green, and small; fruit conical with a neck; seed slightly imbedded; flavor rich and highly perfumed." Examples, Downton, Pitmaston black, Elton seedling.

Class III. Pine Strawberries.—Leaves almost smooth, dark green, of firm texture, with obtuse serratures; flowers large; fruit large, varying from almost white to purple; seeds prominent on a smooth surface; flavor sweet and often perfumed. Examples, Keen's seedling, Carolina, Mulberry, Southborough seedling.

Class IV. Chile Strawberries. —"Leaves very villous, hoary, with small leafets of thick texture, with very obtuse serratures; fruit large; seeds prominent; flesh insipid in the True Chile, and more or less so in the varieties which have originated from it." Example, Wilmot's Superb.

Class V. Hautbois. — "Leaves tall, pale green, rugose; scapes tall and strong; fruit middle-sized, pale greenish white, tinged with dull purple; flesh solid and musky."

Class VI. Green Strawberries. — Characterised as the *Fragaria collina and F. viridis* of botanists, the varieties of which are little known and not of much value.

Class VII. Alpine or Wood Strawberries. — Characterised as *F.*

semperflorens and F. vesca. Examples, Red and White Alpine, Red and White Wood.

The following are descriptions of some best varieties :

Old Scarlet. — Early Scarlet, or Early Virginia ; fruit middle-sized, globular, of a very light scarlet color, seeds deeply imbedded, flesh pale, and very highly-flavored. Although not a great bearer, yet highly deserving of cultivation, as it ripens several days earlier than any other.

Grove End Scarlet, or Atkinson's Scarlet. — Fruit large, roundish, somewhat hemispherical, brilliant scarlet, flesh pale, with an agreeble sub-acid flavor. Remarkable for the wide serratures of its leaves. A good bearer and early.

Roseberry. — Fruit large, conical, with a very short neck, dark red ; flesh firm, pale scarlet, with a rich flavor. An abundant and long-continuing bearer.

Methven. — Fruit very large, round, sometimes coxcomb shaped, bright scarlet ; flesh pale and not firm ; flavor good, but not so rich as the preceding. Sometimes weighs upwards of half an ounce.

Downton, or Knight's seedling. — Fruit large, with a neck, often assuming a coxcomb shape, dark purplish scarlet ; flesh scarlet, firm, with a rich, juicy, and high flavor ; a good bearer, ripening late. Requires good culture.

Elton Seedling. — Fruit large, ovate, often compressed or coxcomb shaped, and not filled at the end of the berry, shining, dark red ; flesh fine deep red, firm, juicy, with a sharp rich flavor ; fruit on long footstalks, frequently projecting above the foliage ; ripens late ; must be allowed to remain on the stem till it become very dark colored, to avoid too great acidity.

Keen's Seedling. — This variety requires protection in the winter by a covering of straw, and is somewhat difficult of cultivation ; but when it succeeds well, it is an abundant bearer, and has a very fine appearance. The fruit is very large, ovate, the largest of a coxcomb shape, dark shining red, especially next the sun ; flesh scarlet, firm, of a rich and agreeable flavor ; ripens rather early in the season. It is considered the best strawberry for forcing.

Wilmot's Superb, is only to be recommended for its great size ; the fruit is round or irregularly ovate, sometimes compressed, pale

scarlet, shining ; seeds projecting ; flesh pale red, nearly white, and wooly at the centre; flavor moderate.

Prolific or Conical Hautbois, Hudson's Bay, double bearing, Musk, or Spring Grove. Fruit medium size, (large for this class) conical, very dark dull red, inclining to purple on the sunny side; flesh greenish, rather dry, but of a rich and highly perfumed flavor. An abundant bearer. Considered by some as the finest of strawberries. According to the London Horticultural Society's Catalogue, " of all strawberries, the hautbois are most variable." They certainly retain a general character, from which they naturally do not depart ; but constancy of character in varieties, denominated as distinct, is but little to be depended upon ; the fruit will occasionally change from globular to ovate, and the contrary, while fertile plantations will produce runners that may, perhaps, be sterile, and seedlings, many of which will certainly prove so. The latter ought to be carefully looked after and extirpated, which can be only effectually done in plantations newly formed while the plants are single, and at the time they are in blossom. It is also necessary to observe, that in all the sorts of hautbois here enumerated, there exist both the *Prolific,* and also these sterile plants commonly called *Males,* which have *long stamens.* The latter ought, in all cases, to be certainly destroyed." The sterile flowers are distinguished in all the varieties of the hautbois by their long stamens, except in the *Prolific,* which also has long stamens ; from *this* they are distinguished by their smaller flowers, and imperfect fructification. Thompson in Loudon's Encyclopedia of gardening, says : " I believe there is no such thing as distinct plants of male and female hautbois. Stamens and pistils are to be found in either a *perfect* or *imperfect* state in every individual flower. Imperfection generally takes place in the pistil, together with the receptacle. To see that these are sound is all that is necessary to be attended to."

Red Alpine. — Fruit the largest of this class, conical, red ; flesh sweet and high flavored. Bears abundantly in suitable soils and situations, from early in summer till late in autumn. We have seen a dish of them on the table picked the first day of the twelth month (December.) The *white alpine* is similar to the preceding, except the fruit is white instead of red. These two varieties are frequently grown promiscuously together.

The Red Wood and *White Wood* resemble the alpine, but the fruit is smaller and rounder.

The Bush Alpine is distinguished by not spreading by runners. It is not so good a bearer as the red and white running alpine, nor is the fruit quite as good.

The following is nearly the order of succession in which the preceding varieties ripen, except the alpines, which continue in succession.

Old Scarlet,	Prolific Hautbois,
Grove End Scarlet,	Wilmot's Superb,
Roseberry,	Downton,
Keen's Seedling,	Elton Seedling.
Methven.	

Modes of Propagation. — Strawberries multiply rapidly during their growth, by runners from the parent plant, which, rooting at every joint, form numerous new plants. To form new plantations, these need only to be removed to the bed where they may flourish. This work may be done any time in autumn, or early in the spring; the latter is best. If done in autumn, care should be taken that the plants are not thrown out by frost, especially on heavy soils. This may be prevented by treading the soil closely about the roots before the ground becomes frozen. Such beds will bear some fruit the summer following the transplanting, and will furnish an abundant supply the second season. The alpines produce well in one year.

The only exception to this mode of increasing, is the Bush Alpine, which never increase by runners; the only way of propagating this variety, is by dividing the root, and transplanting as above described.

Strawberries are only propagated from seed for producing new varieties, except the woods and alpine, which, says Loudon, "come regular from seed, bring a finer fruit than from offsets."

Soil and Situation. — The best soil for the strawberry is a deep rich loam, though they will succeed and bear on any soil which is fertile. The situation should be open and well exposed to light and air. They succeed very well when planted in single rows as edgings. The alpine and wood strawberries may be placed in a more shady situation than others; it is during hot and dry seasons of the year that they are intended chiefly for bearing. They are consequently well adapted to edgings for shrubbery. When the soil is rich, the advantage of employing strawberries for edging is great, as

they succeed in such soils much better when in single rows than when crowded together in a bed.

General Culture. — A very general error is to plant too near together, especially if the soil be fertile and well prepared. *Thorough* culture is by far the best, at the same time that it is, ultimately the *cheapest* method. It is true that on common rich garden soils, a bed may be transplanted which will produce fine fruit and good crops with little care after they are once prepared; we have known beds to yield plentifully which were almost untouched for years, not even having been weeded, the thick growth of the strawberry keeping down, in a great measure every thing else. But by the following thorough mode, or one similar, practised by Keens, of Isleworte, in England, who first raised the celebrated variety known as Keens' seedling, the greatest amount of fruit may doubtless be obtained for the care and labor expended, while the quality would be greatly superior. The soil for this mode of culture, should be trenched eighteen inches to two feet deep, and mixed with decomposed stable manure; if the subsoil be somewhat sterile, it should not be thrown to the surface. The ground should be prepared at least a month before transplanting. "The best way," says Keens, "to obtain new plants, is, by planting out runners in a nursery, for the express purpose, in the previous season; for it is a very bad plan to supply new plantations from old plants." The distances of the rows asunder are about two feet and eighteen inches in the row, for the large varieties, as Methven and Keen's seedling; the smaller varieties may be a little nearer. This distance may seem too great, but it is necessary for sun, air and culture. "These large distances," says Keens, I find necessary; for the *trusses of fruit in my garden ground are frequenly a foot long.*" This fact is a sufficient proof of the excellence of this mode of culture. "After the beds are planted, I always keep them as clear of weeds as possible, and on no account allow any crop to be planted between the rows. Upon the growing of the runners, I have them cut when necessary; this is usually three times in each season. In the autumn I always have the rows dug between; for I find it refreshes the plants materially; and I recommend it to those persons to whom it may be convenient, to scatter in the spring, very lightly, some loose straw or long dung between the rows. It serves to keep the ground moist, enriches the strawberry, and forms a clean bed for the trusses of fruit to lie

upon; and thus by a little extra trouble and cost, a more abundant crop may be obtained. A short time before the fruit ripens, I always cut off the runners, to strengthen the root; and after the fruit is gathered, I have what fresh runners have been made, taken off by a reaping hook, together with the outside leaves around the main plant, after which I rake the beds, then hoe them again. In the autumn, unless the plants appear very strong, I have some dung dug between the rows, but if they are very luxuriant the dung is not required; or in some rich soils it would cause the plants to turn nearly all to leaf. I have also to remark, that the dung used for manure, should not be too far spent; fresh dung from the stable door is preferable to spit dung, which many persons are so fond of."

In England, where the climate is much more moist and less hot than here, decided advantages are found in watering strawberries during hot weather.

Beds, once prepared, generally continue in a good bearing state from three to five years.—*Genesee Farmer.*

Art. IV.—*Artificial Manure.*

The Horticultural and Agricultural Societies of Paris have lately been directing their attention to the value of the receipt left by M. Jauffret, for making artificial manure. It was at the request of the minister of agriculture, that the Royal and Central Society of the Seine undertook the examination of this question: and M. Quenard having about the same time laid before the society two modes of fabricating manure, different from M. Jauffret's plan, it was determined to compare the respective plans together, and determine on their relative utility. M. Quenard is secretary of the Agricultural Society of Montargis, and is esteemed as an experienced cultivator. One of his manures is a species of compost, and the other is analogous in principle to the preparation of M. Jauffret. As this subject is considered of great importance in France, we have thought fit to lay before our readers a concise account of M. Quenard's method of proceeding, premising that the commissioners appointed by the Royal Society of Paris have not yet given in their report.

The mode of preparing the compost is simple enough :

1st. A layer of green stuff taken from a pond.

2d. A layer of quick-lime, ashes, and soot.

3d. A layer of straw and green grass.

4th. A layer of quick-lime, ashes, and soot.

These layers are repeated until they reach a cart load at least. Holes are then made through the several layers, and a quantity of water is introduced, sufficient to saturate the mass, and cause a thorough mixture of the vegetable matters with the alkaline and sooty substances. According to M. Quenard this produces a perfect compost. The second preparation differs from the other, inasmuch as the dissolution of the alkaline substances are first obtained by means of a prepared lye, which is used to saturate the matters which are to be transformed into manure. The following are the proportions to be used in turning 1500 lbs. of straw into manure. In a vessel possessing greater breadth than depth, pour in —

1st. 800 pints of common water.

2d. 125 pints of oven ashes, if they can be procured, as they have the property of potash to some extent ; if not, you must use the common ashes.

3d. 75 pints of soot, if possible from kitchen chimney, for this soot contains more of animal matter, and is more soluble in water. This mixture must then be well stirred up, and made to incorporate.

4th. 20 pints of powerful lime, which must be first slacked with the usual quantity of water.

The whole of this must now be well stirred together again, so as to insure a perfect amalgamation of the several matters. From time to time, during twentyfour hours, this mixing must be renewed, and at the end of that time the dissolution of the whole will be effected. This liquid will be found exceedingly powerful, and capable of producing fermentation. Plunge into this liquid, while moved quickly about, in order to hold suspended the insoluble particles which usually settle at the bottom, the quantity of vegetable substances, which it is desirable to turn into manure — no matter whether they are dry or green, easy to be dissolved or refractory, in with them. When they shall have been well saturated with the liquid, place them in a trench prepared beforehand, with a channel through the side, to let the superfluous moisture run off. This you can receive in vessels, as it will be of use again. As many layers of the stuff thus perfectly

wetted may be placed as may be required. Care must be taken to stir the liquid well, each time that new vegetable substances are put in. As each layer is put on the heap, it should be well beaten down. The more the whole mass is united together, the quicker will be the result. At the farthest, the delay never exceeds sixteen or eighteen days, according to the temperature of the place. The heat may be increased, and the fermentation quickened, by surrounding the heap with whatever substances may be lying about. At the end of three or four days, the heap is wetted with the liquid, from time to time, up to the sixteenth or eighteenth day, when the manure is found ready for use. It is important to preserve a certain quantity of the first preparation, to mix with the mass afterwards, to promote fermentation. Time and quality will both be gained in this manner. This part of the liquid thus preserved may be considered, for manure-making, what mother is in vinegar, yeast in beer, or baum for baking. M. Quenard declares, that he has for years tried this preparation, and that it never, by any chance, has been found to fail. We place it before our readers, leaving them to try the experiment on a small scale.—*London Horticultural Journal.*

Art. V.—*Royal Philipodendron,—Philipodendrum Regium.*

This plant is a native of Nepaul, and was introduced into France by M. Noisette, who met with it in England. He placed it where it is now growing, in the Jardin des Plantes, at Paris. The root which he brought over was set in an earthen pot as a greenhouse plant. After ten years, notwithstanding the care he had taken with it, it was only three feet high. M. Noisette, who had multiplied it by slips, distributed it amongst the trade under the name of *Betula bella*, and perhaps some few amateurs may possess it under that title. M. Noisette, having planted a root in the open ground, in a large tub, it became in a few years a tree of great height. On the 15th of August, 1837, M. Poiteau, who noticed its extraordinary development, perceived that it was sending forth several bunches of flowers: and after a long and mature examination, he was convinced that this tree must furnish a new species different from all those

hitherto known, and very difficult to class among the natural families already established. He applied for and obtained permission to dedicate it to the head of the reigning dynasty, Louis Philippe I.

This tree has a most particular and remarkable growth. It remains for the first ten years under the form of a small bush, without showing any inclination to rise; then it all of a sudden assumes a new shape and becomes a most beautiful tree.

At the first period it is like a thick bush, more wide than high, with a number of branches striking out with a most remarkable lightness, strength, and pliability, and which are susceptible of being used as strings or ties of great solidity. A short time ago a basket formed from its branches was presented to the Horticultural Society. When the tree is young it has a light down on it, formed with hairs in shape of stars varying in number and length. When of adult age, it becomes a pyramidal tree and of very fine appearance, but it is not yet known precisely to what height it may attain. Its branches are well fixed, and their young buds are interspersed with a sort of hair of a transparent white, of unequal length and number from two to ten—similar hairs are found on the edges and upper surface of the young leaves and the young fruits.

The flowers grow in a branchy basket shape: they are small, of a greenish color, and diœcious, or more properly male on certain trees, and female hermaphrodites on others. The first has not been yet seen; the last exhibits the characteristics mentioned above. M. Poiteau, from whose notice this is taken, hopes that a male one will spring forth sooner or later in our cultivation, and perhaps it exists already in England. Notwithstanding the absence of it, he has discovered sufficient to constitute a distinct species. He has most learnedly discussed the place which it ought to hold in the natural families; and after having exposed the characters which bring it near the malvaceous and rosaceous plants, as well as those others that separate it from them, he proposes to consider it as the head of a new genus, and to place it among the dombeyaceous and bythneriaceous plants.

In the north and centre of France, it appears that this tree ought not to be grown in the open air, unless it can be protected from the cold. But it would no doubt succeed in the southern departments, where it would acquire the development which is natural to it, and would furnish the thready fibres to its bark. Hitherto, it has only been multiplied by cuttings. A mild and light soil suits it best.

To the Patrons of the Horticultural Register.

THE publishers of the Horticultural Register and Gardener's Magazine, hereby announce to those who have heretofore patronized this work, that they have come to the determination to discontinue it after the present number. We have come to this conclusion from a number of considerations which will be unnecessary to lay before our readers; we will, however, name some reasons, which have had influence upon us.

1st. We publish, as most of the subscribers to the Horticultural Register know, the N. E. Farmer and Gardener's Journal a weekly paper, with an extensive circulation, devoted to Agriculture, Horticulture, &c. We deem it therefore, unnecessary to continue two works which may be embraced in one. We shall be happy to furnish those gentlemen who now subscribe for the Register, with the N E. Farmer if not already taken.

2d. The price of the work is not sufficient to sustain it, without a large accession of subscribers, which cannot reasonably be expected, when there is so much competition.

3d. The want of punctuality in many of its *patrons*, to pay for the work, is another strong inducement to discontinue. We would not be understood by this, however, that all the subscribers or a majority of them are delinquent; far from it, many of them have paid promptly, and they have our thanks, but there are those, who have not paid a dollar since the commencement of the work—they must not be surprised if we are after them shortly.

We publish below our prospectus for the N. E. Farmer, which we hope to furnish to all who have taken the Register. The index to the 4th volume, will be forwarded in a few days.

JOSEPH BRECK & CO.

PROSPECTUS OF THE NEW ENGLAND FARMER, AND GARDENER'S JOURNAL,

Volume Seventeenth,—commencing July 11, 1838. *Back numbers can be furnished. Published by* JOSEPH BRECK & Co., *No.* 52, *North Market Street, Boston.*

TO THE PUBLIC.

The proprietors and publishers of the New England Farmer ask leave respectfully to present their claims upon the continued patronage of the agricultural community. "Shall auld acquaintance be forgot?" The New England Farmer was commenced sixteen years ago by the late lamented Mr Fessenden. The project of a newspaper devoted exclusively to the concerns and interest of agriculture was at that time a project entirely novel in New England; the success of which was altogether questionable. He brought to it the treasures of his practical knowledge; his careful observation; his varied experience; and his persevering and exact inquiry. It soon rose into public esteem, and contin-

ued a favorite of the public until his death. The vast amount of learned, practical, and useful information contained in its volumes fully justify the patronage which it has received; as it is confidently believed that in this respect no work has been more distinguished; and the same number of volumes is not to be found which are richer in varied, sound, useful, and practical knowledge.

No pains or labor have been spared since the death of this excellent friend of the farming interest, this friend of every social interest, and every useful enterprise, to maintain the high character of this journal and to extend its usefulness. These efforts, from the approbation generally expressed, have not been without success; and this success is an encouragement to persevere and to redouble these efforts. This we promise; and respectfully ask therefore the continued patronage of a reading, a working, and intelligent public.

The proprietors of the N. E. Farmer would scrupulously avoid any invidious comparisons with other agricultural papers, and desire to enter into no competition or rivalry; but they confidently believe that no paper of the same number of pages, within the last year, has presented a larger amount of original matter or of interesting practical intelligence; and their selections have been made from extensive facilities, both at home and abroad; with as much judgment as they can exercise.

They will continue to do their best. The Commissioner of Agricultural Survey will render all the aid consistent with his public engagements, and make it the vehicle of all his communications with the public. The various agricultural and horticultural societies in the state will present all their reports through its pages; and some of the best farmers in New England will continue to enrich its columns with their valuable contributions.

The proprietors hold in utter disdain all mean arts, intrigues or misrepresentations or fallacious promises with a view to obtain patronage. These would be wholly inconsistent with the principles and character which the Farmer has always maintained.

The Farmer hitherto has been eminently a family paper. Its pages have never been stained with a statement, sentiment, or expression, which would raise a blush of shame on the cheek of modesty, or infuse a poison in the uncorrupted mind. We pledge ourselves that in all these respects it shall not forfeit its high reputation.

Having been the pioneer of agricultural improvement and intelligence in the State and country, and without the inclination if it had the power, to drive others from the field, it respectfully asks only a reasonable portion of the harvest of which it sowed the seed, and in regard to which has performed its full share in the cultivation of the crop.

The New England Farmer and Gardener's Journal is published weekly in quarto form, making a handsome volume of 416 pages with an index, at two dollars and fifty cents, in advance, or three dollars at the close of the year.

Editors of papers with whom we exchange will do us a favor to publish this communication.

Boston, Dec. 26, 1838.

QUINCY MARKET.

[Reported for the Horticultural Register.]

APPLES, common,	bnshel,	50 to	75
	barrel,	1 50 to 2	00
Baldwin,	do.	2 00 to 2	50
Golden Pippin,	do.	3 00 to 4	00
Greening,	do.	2 00 to 2	50
Russett,	do.	2 00 to 2	25
BEANS,	bushel,	1 75 to 2	00
BEETS,	do.	50 to	75
BROCCOLI,	head,	12 to	25
CABBAGES,	dozen,	50 to	75
CAULIFLOWER,	head,	12 to	25
CELERY,	root,	6 to	12
CRANBERRIES,	bushel,	1 50 to 2	00
CHESNUTS,	do.	1 75 to 2	00
CARROTS,	do.	50 to	75
GRAPES,	pound,	25	
HORSERADISH,	do.	8 to	12
GARLIC,	do.	12 to	20
LEMONS,	doz.	20 to	25
ORANGES,	do.	20 to	25
ONIONS, White,	bushel,	1 25 to 1	50
common,	do.	1 00	
PARSLEY,	peck,	25	
POTATOES, Common,	barrel,	1 50	
Chenangoes,	do.	1 50 to 1	75
Eastport,	do.	2 00 to 2	50
Nova Scotia,	do.	1 50 to 1	75
PEARS, Baking,	do.	4 50	
	bushel,	1 50 to 2	00
RUTA BAGA,	do.	37	50
SQUASH, Winter sorts,	hundred,	1 50	
SPINACH,	half peck,	17	25
TURNIPS,	bushel,	25	37

Boston, December 20, 1838.