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Camellia japonica Macculloch var. *Aprilis*



HORTICULTURAL REGISTER,


AND

GARDENER'S MAGAZINE.

EDITED BY

THOMAS G. FESSENDEN AND J. E. TESCHEMACHER.

VOLUME I.



BOSTON:
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1835.

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THE
HORTICULTURAL REGISTER
AND
GARDENER'S MAGAZINE.

JANUARY 1, 1835.

INTRODUCTION.

THE benefits, which have resulted, and which may well be anticipated as still in reserve to bless the human race from the science and the art of Horticulture, can scarcely be overrated, and require no formal specification. As a means of subsistence, this fine but useful art is the first resort of man, when emerging from a savage and aspiring to a civilized state. The love of gardening is natural to the human race, and is one of the first propensities developed in children, as soon as they become capable of receiving pleasure from intellectual as well as from corporeal gratifications. The inclination to seek enjoyment in cultivating a garden is not only of the earliest occurrence, but continues latest in life—is not only the delight of childhood but the solace of age. “The enjoyment of a garden is so congenial to our ideas of happiness as to be desired by men of all ranks and professions, who toil hard in cities, hoping with Cowley, one day to retire to a small house and large garden.”

The following remarks, from the “Memoirs of a French Nobleman,” are so appropriate to our purpose, that we are induced to give them in this place :—

“I could wish to inspire all the world with a taste for gardens. It seems to me impossible that a bad man should possess it. There is no virtue, which I do not attribute to him, who loves to talk of gardens and to form them. Absorbed in this passion, which is the only one which increases with age, he daily overcomes those, which derange the calmness of the soul or the order of society. When he has passed the limits of the city, the seat of moral and physical corruption, to go and work on his lands or enjoy them, his heart rejoices at the sight of na-

ture, and experiences the same sensation as his lungs, on receiving the pure air that refreshes them."

Sir W. Temple observed, that, "As gardening has been the inclination of kings, and the choice of philosophers, so it has been the common favorite of public and private men; a pleasure of the greatest, and the care of the meanest, and indeed an employment, and possession, for which no man is too high nor too low."

Perhaps there is no part of the United States, which presents greater natural advantages to those, who are or wish to be engaged in the pursuits of horticulture than the vicinity of Boston. These are well portrayed in a letter from Mr. WILLIAM WILSON, a gentleman well versed both in the science and practice of gardening, who had been appointed a delegate from the New-York Horticultural Society to attend an anniversary dinner of the Massachusetts Horticultural Society. We quote from his remarks the following :—

"The face of the country to the south and west of Boston, to a distance of many miles in extent, presents a beautiful aspect, and, from the great variety of its broken and highly diversified surface, exhibits, in all directions, the most charming sites for beautiful villas. The natural characteristic of this part of the country may be justly termed that of the beautiful—the limits of the low ground no where extending to such a degree as to tire the view, nor any of the high grounds arising to that degree of elevation calculated to inspire emotions of magnificence or the sublime. The soil in general appears to be a light warm loam, of no great depth, resting upon rather a gravelly kind of bottom, and seems remarkably well adapted to the growth of fruit and forest trees. The proportion of woods and trees, it appears, had at one time been scanty. But this deficiency is now very well supplied by ornamental plantations, set out with such taste and managed with such skill as to be productive of the finest effect. The Bostonians have most judiciously availed themselves of the numerous and delightful situations every where presented in the vicinity for forming country residences. Their houses exhibit rather a style of beautiful simplicity than of ostentatious grandeur. In the disposition of their grounds, they display a more refined taste for ornamental gardening, and the cultivation of particular fruits, and seem to excel more in these departments than in the kitchen garden."

These remarks, from a scientific and judicious foreigner, afford proof that the location of the *Horticultural Register* in Boston promises fair to afford facilities for procuring intelligence relative to the objects, to which the work will be devoted. We shall endeavor to avail ourselves of them to the full extent of our means and possible exertions. We would premise, however, that our object is utility, and not display. We shall generally avoid words of "learned length and thundering sound," and when we use botanical and other technical

phrases, we shall commonly accompany their use with an explanation in words of common occurrence, and to be found in every English Dictionary. But we believe that terms of art will by degrees become less annoying to common readers, because they will be more universally understood. They are often used without pedantry, because their meaning is precise, and understood by men of science of all nations. For instance, the meaning of the botanical term *calyx* may be given in its definition, which is "that outer green part of a flower, usually divided into small leaves, sustaining and embracing the corolla, or secondary covering." But always to give the definition instead of the term would be tedious, and, to many, disgusting. We shall, therefore, pursue a middle course, and give the technical term, for the sake of brevity, without its definition, unless we should apprehend that its meaning may not be generally and readily comprehended. But if we should now and then make use of words, which are obscure or unintelligible to some of our readers, and they should thereby be induced to search for their signification in dictionaries, glossaries, &c. the acquisition of new and useful ideas might be the consequence. We shall, however, commence with plain words and simple ideas, and if our patrons appear to require something more erudite and complex, we shall gratify them to the extent of our powers and researches.

Gardening is a kind of agriculture, and may be considered as miniature farming. The more perfect farming becomes, the more nearly it resembles gardening. Both might be embraced in one word, (if we were disposed to coin one,) viz. *terraculture*, or the art of increasing and ameliorating the useful and ornamental products of the soil. Still there are shades of difference between the two arts, and articles or communications proper for a Farmer's Journal might seem a little out of place in a Horticultural Register, and *vice versa*. Many of our farming customers have, from time to time, complained that the *New-England Farmer* has been too much occupied with matter relating exclusively to Horticulture; and, on the other hand, gardeners have asserted that our Agriculture is almost useless to them. With a desire, as far as possible, to remedy these evils, we have commenced, and hope to establish, the present work, to serve as an accompaniment to the *New-England Farmer*, that the two publications might embrace the topics of most interest, as well to field cultivators as to those, whose tillage is mostly or exclusively limited to gardens.

The work we now commence has been several years in contemplation, and the writer of this article has been repeatedly solicited by Mr. BARRETT, for two years past, to undertake to conduct a magazine of the kind. The want of health, and a fair prospect of such assist-

ance as can alone give a chance of success, has, till the present period, induced him to decline the undertaking. These obstacles being in a great measure removed, we now assume our editorial chair with a wish that, by persevering industry, we may in some degree promote the important objects to which this Journal is devoted.

T. G. FESSENDEN.

Boston, January 1, 1835.

ON THE IMPORTANCE OF CULTIVATING GOOD FRUIT.

CULTIVATORS, generally speaking, in this country, do not seem to be aware of the importance of cultivating the best varieties of fruit. They generally consider the article as a *mere luxury*, and, therefore, give but little attention to its culture. But though fruit is not *indispensable* to the support of human existence, and life may be sustained on aliment less palatable and less wholesome, it is, nevertheless, a very useful article, and one of the best gifts of Providence to the human being.

A writer in the *Annales d'Horticulture* observes that "One of the best aliments, and the best appropriated to the different ages of life, is that which fruits afford. They present to man a light nourishment, of easy digestion, and produce a chyle admirably adapted to the functions of the human body. * * *

"There are fruits, which, when perfectly ripe, can be eaten even to excess without inconvenience. Such as grapes, cherries, and currants; the other kinds never occasion ill consequences if they are eaten only to satisfy the demands of nature. They are injurious when large quantities are taken into the stomach, already filled with other food. There are certain stomachs, with which fruits do not equally well agree, but still they are not injurious if taken with moderation. * * *

"Thoroughly ripe fruit, eaten with bread, is perhaps the most innocent of all aliments, and will even insure health and strength. The author of this article has made the experiment. He passed a whole year without taking any other food than fruit, bread, and water, without his power or vigor having been diminished in the least, notwithstanding the great exercise which he constantly took.

"In traversing the territories of Germany, there is to be seen near each habitation, a vineyard or a garden of fruit trees. The villages are surrounded with them, and there are but few families who do not make use of fruits during the summer, and preserve a certain quantity for winter. The surplus is sold in the cities. There are to be seen upon the Rhine, and other rivers in Germany, boats laden with dried apples, pears, and plums. These fruits are objects of considerable

commercial importance. It is desirable that the departmental horticultural societies should offer premiums to encourage the proprietors of small estates to plant fruit trees of the best kinds.

“As the belief is general that fruits produce diseases, and especially the dysentery, we think it our duty to introduce the following passage in relation to this subject, which is to be found in *advice to people upon their health*, by Tissot.

“There is a pernicious prejudice, with which all are too generally imbued :—it is that fruits are injurious in the dysentery, and that they produce and increase it. There is not, perhaps, a more false prejudice.

“Bad fruits, and those which have been imperfectly ripened, in unfavorable seasons may occasion colics, and sometimes diarrhœas,—oftener constipations and diseases of the nerves and skin, but never epidemic dysentery. Ripe fruits of all kinds, especially in the summer, are the true preservatives against this malady. The greatest injury they can do is in dissolving the humors, and particularly the bile, of which they are the true solvents, and occasion a diarrhœa. But even this diarrhœa is a protection against the dysentery. It has not been observed that this disease is more common during those seasons when fruits are very abundant. It is also believed that it is more rare and less severe than heretofore, and this can surely be attributed if it is true, but to the more numerous plantations of fruit trees, which have rendered fruit very common.

“Whenever dysentery has prevailed, I have eaten less animal food and more fruit, and have never had the slightest attack. Several physicians have adopted the same regimen.

“I have seen eleven patients in the same house; nine were obedient to the directions given, and ate fruit; they recovered. The grandmother, and a child she was most partial to, died. She prescribed burnt wine, oil, powerful aromatics, and forbade the use of fruit; it died. She followed the same course, and met the like fate.

“This disease was destroying a Swiss regiment, which was stationed in a garrison, in the southern part of France. The captain purchased the grapes of several acres of vines. The sick soldiers were either carried to the vineyard, or were supplied with grapes from it, if they were too feeble to be removed. They ate nothing else; not another died,—nor were any more attacked with the complaint after they commenced eating grapes.

“A minister was attacked with the dysentery, and the medicines which were administered gave no relief; he saw by accident some red currants, and had a great desire to eat them; he ate three pounds between seven o'clock in the morning and nine o'clock in the evening; he was better during the day, and entirely cured the next.

“I could accumulate a great number of these facts, but the above are sufficient to convince the most incredulous. Far from prohibiting the use of fruits when the dysentery prevails, too many of them cannot be eaten. The discretion of the police, instead of interdicting them, should cause the markets to be abundantly supplied with them. This is a truth, which intelligent persons no longer doubt. Experience has demonstrated it, and it is founded in reason, since fruits remove all the causes of dysentery.”

Willich's Domestic Encyclopedia observes that "apples, besides their aromatic qualities, are wholesome and laxative when fully ripe. In diseases of the breast, such as catarrhs, coughs, asthmas, consumptions, &c. they are of considerable service; for these beneficial purposes, however, they ought not to be eaten raw, but either roasted, stewed, or boiled; they also may be usefully employed in decoctions, which, if drank plentifully, tend to abate febrile heat, as well as to relieve painful strictures, in pectoral complaints."

There are many uses for fruit, which do not appear to have become so general in this country as could be wished. In France, bread is made consisting of one-third of boiled apple-pulp, baked with two-thirds flour, properly fermented with yeast for twelve hours. This bread is said to be very fine, full of eyes, and extremely palatable and light.

Apples and other good fruit ameliorate the taste and the tone of the human system. "The palate," says Mr. Knight, the celebrated English horticulturist, "which relishes fruit, is seldom pleased with strong fermented liquors; and, as feeble causes continually acting, ultimately produce extensive effects, the supplying the public with fruit at a cheap rate would have a tendency to operate favorably both on the physical and moral health of the people."

It has been ascertained that apples make an excellent food for swine, cattle, &c. Some assert that not only sweet apples, but sour apples are valuable for that purpose, especially, when boiled and mixed with potatoes or other roots.

If, then, fruit has valuable uses, not merely as a luxury, but as an article both of food and medicine, it must be of much importance to propagate the best varieties. It is not more expensive to raise the best than to cultivate those which are comparatively worthless. We are, therefore, much gratified in being able to place before our readers the following valuable article, by R. Manning, Esq. of Salem, Mass.

MR. FESSENDEN,—Sir, Inquiries having been made for a List of Fruits, adapted to the climate of New-England, the Fruit Committee of the Massachusetts Horticultural Society offer to the public the following list of Apples, Pears, Plums, and Peaches; all of them good, and many of them excellent. They do not wish to be understood as saying that the list contains *all* the fruits worth cultivating, but they prefer to recommend a few sorts known by experience to be good, to a large number of doubtful names, whose merits have not been sufficiently tested. Additions will be made to the list after the close of the ensuing fruit season, which will be published in the New-England Farmer. All of the fruits enumerated, have been exhibited at the

meetings of the Horticultural Society ; bearing trees of most of them are now growing in the gardens of the members of the Committee, and trees can be had at any of the Nursery Establishments in the vicinity.

It may be proper to remark also, that the time of maturity, of the different varieties, is designated in nearly all the nursery catalogues, a point of much importance to be attended to, with a view to a regular succession of fruit, as well as the fact that there are some kinds embraced in this list, which, although it would be very desirable for every fruit grower to possess a single tree, could, by no means, be recommended for extensive cultivation, whilst others may be cultivated to any extent desired. These points, as well as the relative degrees of excellence between good, better, and best, applicable to the different varieties, must be left to the taste of the cultivator, which, in the advanced state of knowledge upon the subject, it is presumed, almost every one has within his reach the means of determining correctly.

APPLES.

Early Harvest,	Red Astracan,
Red Margaret,	Kilham Hill,
Bough,	William's Favorite,
Summer Rose,	Murphy,
Summer Queen,	Hubbardston Nonesuch,
Summer Pearmain,	Ortley,
Drap d'Or,	Porter's Favorite,
Fall Pippin,	Eppes's Sweet,
Doctor or Dewitt,	Benoni,
Hawthorndean,	American Red Juneating,
Pennock's Red Winter,	Stump of Boxford,
Baldwin,	Lyscom,
Lady, Pomme d'Api,	Jonathan,
Yellow Bellflower,	Wine,
Ribstone Pippin,	Yellow Ingestrie,
Rhode-Island Greening,	Red Ingestrie.
Roxbury Russett,	

PEARS.

Little Musk,	Buffum,
Amire Johanet,	Seckle,
Madeline,	Harvard,
Epargne, (Jargonelle,)	Red Bergamot, (French,)
Skinless,	Chaumontelle,
Julienne,	Beurre Diel,

Long Green,	Beurre Knox,
Rouselette de Rheims,	Bleeker's Meadow,
Prince's Sugar,	Bartlett,
Lowry's Bergamot,	Capiaumont,
Moorfowl's Egg,	Cushing,
Autumn Bergamot, (Eng.)	Dix,
Washington,	Angouleme,
Fulton,	Summer Thorn,
Heathcote,	Andrews,
Green Sylvanthe,	Dearborn Seedling,
Johonnot,	Surpasse Vergalieu,
Napoleon,	Naumkeag,
Passe Colmar,	Golden Beurre of Bilboa,
Raymond,	Wilbur,
Saint Ghislein,	Cumberland,
Urbaniste,	Knight's Seedling,
Wilkinson,	Capsheaf,
Colmar Souverain,	Winter Orange,
Burgomaster,	L'Echasserie.

PLUMS.

Green Gage,	Coe's Golden Drop,
Washington,	Bleeker's Gage,
Prince's Imperial Gage,	Italian Damask,
Orleans,	Peach,
Smith's Orleans,	Semiana, (of Boston,)
Bingham,	Royale de Tours,
Elfrey,	Pond's Seedling.

CHERRIES.

May Duke,	Late Duke,
Black Tartarean,	Downer's Late Red,
Black Heart,	Black Eagle,
White Biggareau,	Belle de Choisy,
Davenport,	White Tartarean.
Graffian,	

PEACHES, FREESTONES.

Early Ann,	Van Zandt's Superb,
Early Royal George,	Washington,
Large Early Red Rareripe,	Yellow Red Rareripe,
Coolidge's Favorite,	Teton de Venus,
Morris's White,	Heath, (Kenrick's,)
Old Mixon,	Wells's Seedling,

Grosse Mignonne,	Hoffman's Favorite,
Red Magdalen,	Barrington,
Yellow Rareripe,	Clingstone,
Yellow Alberge,	Kennedy's Lemon,
Malta, Belle de Paris,	Old Newington,
Belle de Vitry,	Williamson,
Nivette,	Spanish,
President,	Hyslop's,
George Fourth,	Heath,
White Blossom, (Snow,)	Congress.

[For the Horticultural Register.]

NEW FRUITS.

THE desire has often been expressed and a call more or less imperative is often made, for a select list of fruits, a limited number, of *the best possible kinds*. It is evident, however, that, at this early day, such calls may be premature, inasmuch as no select list can consistently be offered, except of such kinds only as have been proved in our country. But as many of the new kinds of fruit of the highest character, have not as yet borne fruit in our country, and must therefore be excluded, it must be obvious, that such lists will from time to time require a revision.

Such a select list as we should be truly desirous of offering to the public as *the very best possible*, cannot yet be formed, till all the new and finest kinds, which this extraordinary age has produced, have been here put to trial.

Effectual measures are now in train, which it is to be hoped may bring them all—a host in numbers, in names, and in excellence.

Last spring, and late in May, through the distinguished liberality and philanthropy of the celebrated Professor Van Mons of Louvain, Mr. Manning and myself received over three hundred select varieties of new Flemish Pears, of the first class for excellence, very many of which, had not yet been disseminated even in Europe. But although every exertion was used, we were yet enabled to save, unitedly, not over one hundred kinds; and, through the liberality of the London Horticultural Society, we also received over fifty new kinds of Pears, besides some other varieties, chiefly Flemish, and which have been proved, in their celebrated garden of Chiswick, to be of great excellence. This number, and from this source, we have also been enabled to save. We look,

however, for the renewals, and to complete our lists from both sources of all that is excellent. All these will be put to immediate trial; and the results the public may in due time depend on knowing.

During the last thirty years, more kinds of pears of celebrated excellence have originated in Belgium, than all that ever existed before. This is principally to be ascribed to the distinguished zeal and successful experiments of Van Mons, and of Hardenpont, of Coloma, of Meuris, of Nelis, of Duquesne, of Dorlain, of Liart, and of others.

Dr. Van Mons and the Abbe Duquesne are stated to have originated more than eight hundred fine kinds of pears, with experiments on eighty thousand, and on a vast scale. Their practice seems to have been, in many respects, the reverse of all the popular theories of the day—the results unlike any thing of the kind before known.

WILLIAM KENRICK.

Newton, Dec. 24, 1834.

[For the Horticultural Register.]

CULTIVATION AND PROTECTION OF PLANTS.

SIR,—I hail with pleasure the appearance of your periodical work as the means of increasing the taste in this highly favored country for the useful and ornamental cultivation of the earth. If this increasing taste should result in the formation of central and branch societies for the prize exhibition of flowers and fruits, the occupation of horticulture would afford sufficient interest and excitement to engage the leisure hours of those who having acquired by industry sufficient wealth, would gladly retire from commerce, could such an amusement be found, as would fill the vacuum of minds used to activity and the excitation of rivalry.

I have recently witnessed the erection, in the vicinity of Boston, of numerous villas and country seats, many with aspects due east, and others altogether without protection from the northeast and northwest winds, which are of the longest duration and the severest in this climate. It is, of course, hardly to be expected that plants even of northern habits can flourish under such circumstances. Many of them even in their native situations enjoy local protection from forest moss or long grass; their beauty acquires for them the eminence of transplanted to ornament the habitations of man; and, without the requisite attention to their native soil and habits, is it to be wondered at that they dwindle and finally perish? Such is the fate of the fragrant *Magnolia Glauca*, the splendid *Rhododendron Maximum*, the

Kalmia Latifolia, and many others which are brought and transplanted by cart-loads, every year, at a useless expense and vexation.

My first care in selecting a spot for a house and garden, would be to secure the shelter of some rising ground from the rude northern blast; and then to form an additional barrier, by planting a belt of evergreen trees from fifty to one hundred feet in depth; such as the red cypress, commonly called the Savin, intermingled with the varieties of evergreen fir, and those oaks which retain their foliage during the winter. The red cypress of all sizes abounds in this vicinity, and may be easily transplanted of any size, by digging a trench in the fall all round the tree, undermining gradually, and when the first frost hardens the earth about the roots, so that it will move without exposing them, it may be lifted and placed in the hole previously dug to receive it, taking care, if the frost should prevent its being properly filled in and fixed, to fill up with straw or litter the tree to a stake so that it be not blown down.

With such protection I doubt not that the *Magnolia* and *Rhododendron* would retain their foliage during a moderate winter; the light and elegant green of their leaves, contrasted with the dark colors of the fir and cypress, would add considerably to the charm of the winter landscape.

If, in addition, this belt could be bordered inside with a close-cropped hedge of Privet or Thorn, the shelter would be rendered efficient for herbaceous plants interspersed amongst the above; for this purpose I should recommend the formation of a border entirely of peat earth to the depth of three feet, in which might be planted the hardy species of *Magnolia*, the *Rhododendrons*, *Azaleas*, *Kalmias*, and a host of others, which prefer this earth on account of its obstinate retention of moisture. To run over the surface between these may be placed the very fragrant *Mitchella repens*, and *Epigea repens*, (Mayflower,) the *Gaultheria procumbens* (Checkerberry,) with its lively red berry, which plants now "waste their sweetness in the desert air," and are all to be found in the vicinity of Boston.

In very severe winters the boughs of the cypress laid in such a border would be of considerable use in preserving plants of high and shrubby growth, but for those of humbler pretensions six inches of *Sphagnum* (the bog moss,) were preferable, and, indeed, even in the summer this latter covering would protect them from the scorching and drying rays of the mid-day sun,—and as all mosses, however dry, immediately recover their verdure on the application of moisture and retain it for some time, the appearance would be far from unsightly.

Dec. 1834.

I. E. T.

[For the Horticultural Register.]

ON THE GRAPE VINE.

THE grape vine is a deciduous tree, with an irregular contorted stem, and long flexible branches. They trail on the earth, or, connected by their tendrils to trees, they rise vertically, even to the summits of those which crown the forest. The leaves are large, smooth, or downy, serrated, lobed, or entire. The leaves and footstalks of the white or yellow grapes, change from a green to a yellow color late in autumn, and those of the red or black grapes, to a reddish hue. The blossoms are produced in long clusters or racemes, from the wood of the same year; they possess a fragrant odor. The fruit is in clusters, the berries round or oblong; their color varying from white or yellow to red, to blue, or to black. The pulp contains a juice, rich, saccharine, and abundant, of surpassing flavor. The berries contain from one or two, to five small stones. Those, however, of the Ascalon, or Corinth, and the Sultana, have none.

In speaking of the culture of the vine, we should have due regard to those modes of management which are practised in a country, one of the most enlightened, and possessing a climate not very much unlike our own; where the vine has been cultivated as an article of commerce and subsistence for two thousand years; and where six millions of acres are cultivated in vineyards.

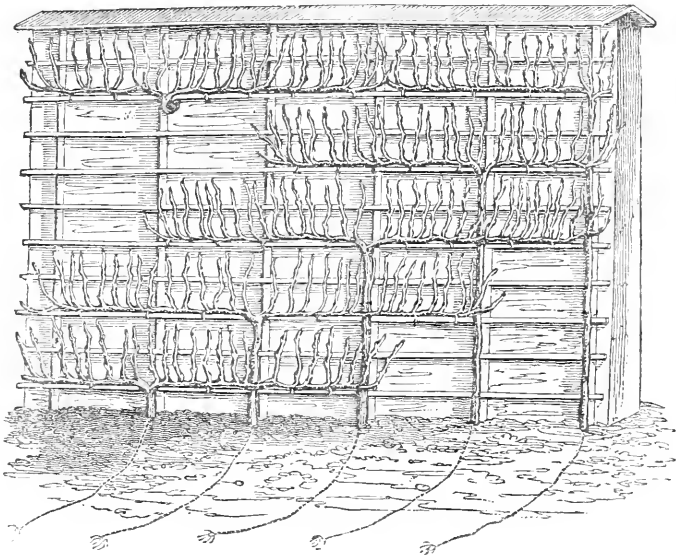
From all the accounts which we have been enabled to receive, it will appear that the climate of Paris, in the north of France, differs not very materially in the average amount of heat and cold, from that of Boston, the capital of New-England. Their springtime, from its commencement, which is early in March, is obnoxious to storms, and the destructive frosts of winter. Our springs, from their not commencing till a later period, are rather intermingled with the heat of summer; and the vine, with us, never, or but rarely, begins to vegetate, till the vernal frosts are gone. With us, vegetation slumbers long, and in deep security, immured in our winters, so intensely cold, nor awakes, till the danger is past. For the longer duration of their springs, their summers, and their autumns, we are more than recompensed, even in our winters, so rigorous and so happily prolonged; and in our skies, so serene and unclouded; and in a sun, less inconstant, more fervid, and intense in its heat, from its greater elevation.

In the middle and northern departments of France, and in vineyard culture, the vines are kept low, like plantations of the raspberry, the vines being planted in close order; or they are trained to low stakes,

which are renewed every year. When the vine has risen to a height sufficiently above, it is bent over, and passed to the top of the next stake, and secured in its rear; its luxuriance being thus restrained.

The same system of restriction is practised at the *Clos de Vougeaud*. This is regarded as the best vineyard in France, and was sold during the revolution, and in 1794, for one million one hundred thousand francs. This vineyard is walled round. The vines being kept low, and the ground never manured. The soil is calcareous, on a foundation of limestone or calcareous rocks.

In cold countries, where grapes require the whole heat of the sun, the vines, according to the best authority, should be elevated on poles, placed perpendicularly in earth. And in this mode the vines may be very closely planted. The earth being left uncovered, and receiving all the heat of the sun's rays, and these being reverberated, the whole plant is exposed to its action. But in warmer climates the earth requires to be sheltered from the excessive heat of the sun, and the vines may be supported on arbors, or suffered to creep on the ground.



The mode of training the vine at Thomery, as represented in the cut above, appears to have originated from the well-known and singular fact, that an extended vine produces not fruit except at its *extremities*. That a vine carried beyond the bounds of a limited extent, ever becomes barren at its base. The system of training and

pruning, which is there practised, and with such signal success, may therefore be considered, as the perfection of every mode which has ever been devised.*

Thomery is a village near Fontainebleau, and but a few leagues from Paris. Its grapes, with which the markets of the capital are supplied, are proverbial for their superior excellence. It will appear evident, that this justly merited celebrity, is not due either to the superior quality of the soil, or to its favorable exposure; but to the *management* of their grapes *alone*. For Thomery has not a happy exposition; the quality of the soil is inferior, in many parts sterile. It is on the side of a hill, facing north and east, and sloping to the river Seine, which washes its base; the soil is clayey, cold, and almost incredibly hard to cultivate.

The vines of Thomery are trained to trellises which are attached to vertical walls. The rails of the trellises are nine inches asunder, the lowest rail being six inches from the ground. The walls are of clay, plastered on both sides with a cement of lime and sand: their height is eight feet, and they face to the east, and to the south, and are covered by a coping, which projects nine or ten inches over the vines, to defend them from frosts, and hail, and from rain.

The vines are trained in cordons, each vine being trained in a cordon of eight feet. This cordon is formed of two arms, each four feet in length, and proceeding horizontally in opposite directions, from the same point of the vertical stem.

The lower cordon is formed from vines planted eight feet asunder on the border, and secured to its destined position on the rail at six inches from the earth. The second cordon, which is formed from vines planted intermediate, and twenty inches on the border from the first, is secured to the rail a foot and a half above the lower cordon. In like manner, and at the same respective distances asunder, the third cordon, the fourth, and the fifth, or upper cordon, are formed, and each secured at different heights, to their destined rails; and the work being completed, the vines will be twenty inches asunder in the border.

Each arm of the cordon is provided with eight spurs, which should be situated six inches asunder; and from each spur two fruitful shoots are annually produced, which are trained vertically and secured to the intermediate rails—and each vertical shoot will produce two clusters.

* The preceding engraving is from the Transactions of the London Horticultural Society, and in one particular it is evidently wrong. The vines are here placed two feet asunder, whereas they ought to be but twenty inches. This rendered it necessary to bring the whole upper tier or cordon, through an aperture from the back side of the wall.

Thus when the cordons are once completed, there will be produced on each cordon, sixty-four clusters; and on every continuous square of eight feet, three hundred and twenty fine clusters will be annually produced.

The completion of the cordons is a work of some years, but meanwhile some fruit is annually produced. But when once completed, they remain without change, and unaltered. This most perfect control is preserved by *spur-pruning*. Spur-pruning consists in cutting the vine in autumn, to within a quarter of an inch of its base, and the young and fruitful shoots, which are annually produced from the spurs, issue from the almost invisible eyes, which will be found, situated at the very base of the shoots of the former year.

The borders in which the vines are planted at Thomery, are formed sloping, that superfluous moisture may be drained off. The ground is kept uncovered and bare; it is never dug deep, but cultivated lightly, and only with the hoe. Every art is from the beginning used to multiply innumerable the roots, these being encouraged to approach near the surface undisturbed.

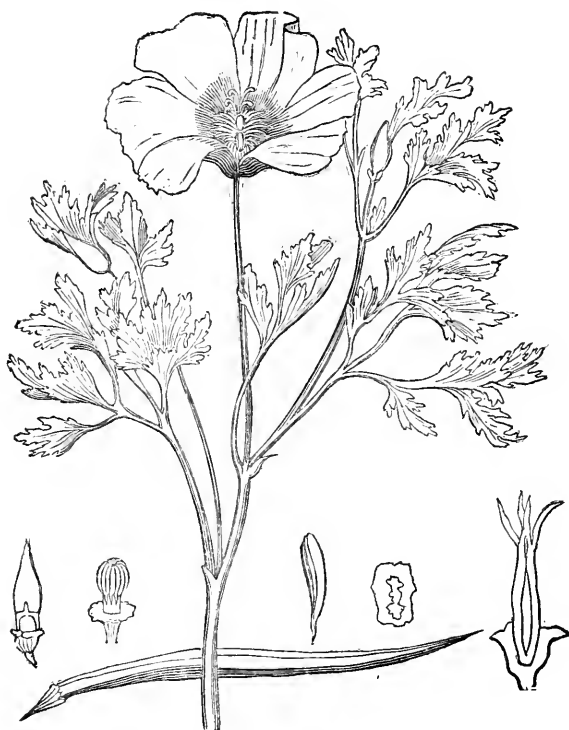
When it is attempted to train a single vine with two or more sets of cordons, proceeding at unequal heights, from the same vertical stem, the upper cordon becomes the *superior*, and the equilibrium is destroyed; and the lower or inferior cordons languish, being robbed of their nourishment by those above, and the tendency of the sap to pass uninterruptedly upwards.

For a more perfect account of this system, which should be understood in perfection before it is attempted in practice, we might refer to the *Bon Jardinier*—to the account of Mr. Robertson in *London Hort. Trans.* or to Loudon's *Magazine*, or to the *New American Orchardist*.

The long canes of the vine, the production of a single year, if left to themselves, will only break, and produce fruit at their extremities. To enable them to produce fruit throughout their whole length, *art* is necessary. Before vegetation commences in spring, the long cane or vine of the former year's growth, may, in vineyard culture, be trained spirally, around a stake or pole. Or otherwise it may be tied in a coil; by either mode of treatment, the buds will break, and grow equally from its extremity to its base. When the buds have grown an inch or a little more, the vine may be uncoiled, and secured to its destined position on the rails or trellis. In this way astonishing crops of grapes are produced.

WILLIAM KENRICK.

Newton, Dec. 25, 1834.



ESCHSCHOLTZIA CALIFORNICA.

(CALIFORNIAN ESCHSCHOLTZIA.)

THE Eschscholtzia is a hardy annual, the seed of which should be started in a green-house or frame and transplanted in May into the open ground. Each plant affords a large number of decumbent stems covered with a glaucous foliage, from which arise the most brilliant yellow flowers with a dark orange eye, unfolding their petals in the sun and closing them at the approach of rain.

The plant grows about one foot high, and flowers from July to September. We have never known but one plant affording a double flower, and that was cultivated in the garden of M. P. Wilder, Esq. of Dorchester. It was as double as a rose, and could it be so propagated as to insure it constantly double, it would be found a great acquisition to the flower garden.

[For the Horticultural Register.]

HYACINTHS AND OTHER FLOWER ROOTS.

ALL bulbous flower roots should be planted in a light soil, rather rich, and the proper time for planting in the open ground is in October and November, in beds or borders, to be prepared by digging up the ground two feet deep and enriching it with old stable manure. The large nurserymen and florists in London, particularly those in the branch of early flowers, plant their Hyacinths six or eight inches apart, cover them over six or eight inches deep with warm manure; late in January or early in February they remove the manure and lift the bulb, which has thrown up three or six inches yellow stem. They place them in pots, in the green-house; the stem becomes quickly green by exposure to light, while the flower stalk, formed under protection of the leaves, shoots rapidly up, and a few days are sufficient for the flowers to unfold in perfection.

To bloom them in pots in the green-house, a plan new to us is practised by Mr. Haggerston at the garden of J. P. Cushing, Esq. which is to cover the pots containing the Hyacinth with others inverted, which remain until they have started about three inches, when they are taken off and the flower unfolds similar to the manner described. The benefit of being thus covered is, retarding too rapid a growth, strengthening the stem, and throwing it up higher and better set with flowers. This plan might be adopted in a warm room.

The following remarks are from a sheet recently published by G. C. Barrett, and are directions for the management of bulbs and plants in the parlor; and as a little science in parlor-window Floriculture might be beneficial to practice, we here insert them.

“*Hyacinths* and other bulbs that are intended to flower in glasses, should be placed therein during October and November, and kept in a cool room. After the fibres begin to push a few shoots, the glasses may be taken to the warmest apartments to cause them to flower early. Bring a few from the coldest to the warmest every two weeks, and thus a succession of bloom may be kept up from January to March.

“Supply the bulbs with fresh water once a week, in which period they will inhale all the nutritive gas that they derive from that element, if they are in a growing state. Fill the glasses with water, so that the bottom of the bulb may just touch it.

“The water should be changed as it becomes impure; draw the roots entirely out of the glasses; rinse off the fibres in clean water, and wash the inside of the glasses well. Care should be taken that the water does not freeze, as it would not only burst the glass, but cause the fibres to decay.

“December, January and February is the trying season for all plants that are kept in rooms, especially those that are desired to have a

flourishing aspect through the winter, a few general instructions will perhaps be desirable to all those who are engaged in this interesting occupation, which forms a luxury through the retired hours of a winter season, and with very little attention, many are the beauties of vegetative nature that will be developed to the gratification of every reflecting mind.

“All the varieties of *Polyanthus Narcissus* are well adapted for indoor flowering. The Grande Monarque and Roman are charming flowers; the latter is perhaps the earliest of all bulbs; if potted in October or November, it will bloom by Christmas; the flowers are four or five in number, of a delicate satin white, with double cups of a rich jessamine perfume.

“Plants that are kept in rooms generally are such as require a medium temperature, say forty degrees. Sitting rooms or parlors, about this season, are, for the most part, heated from fifty-five to sixty-five, and very seldom has the air any admittance into these apartments, thus keeping the temperature from fifteen to twenty-five degrees higher than the nature of the plants requires, and excluding that fresh air which is requisite to support a forced vegetative principle. Therefore, as far as practicable let the plants be kept in a room adjoining to one where there is fire heat, and the intervening door can be opened when desirable. They will admit sometimes of being as low as thirty-three.

“If they be constantly kept where there is fire, let the window be opened some inches, two or three times a day, for a few minutes, thereby making the air of the apartment more congenial, both for animal and vegetable nature.

“There are very few plants killed for want of water, during winter. All that is necessary is merely to keep the soil in a moist state, that is, do not let it get so dry that you can divide the particles of earth, nor so wet that they could be beat to clay. The frequency of watering can be best regulated by the person doing it, as it depends entirely upon the size of the pot or jar in proportion to the plant, whether it is too little or too large, and the situation it stands in, whether moist or arid. Never allow any quantity of water to stand in flats or saucers except bulbs. This is too frequently practised with plants in general. Such as *Calla Æthiopica*, or African Lily, will do well, as water is its element, (like *Sagittaria* in this country;) and the *Hydrangea hortensis*, when in a growing state, will do admirably under such treatment. Many plants may do well for some time, but it being so contrary to their nature, causes premature decay; a fetid stagnation takes place at the root, the foliage becomes yellow, and the plant stunted; and in the winter season, death will ensue. Clean the foliage with sponge and water frequently, to remove all dust, &c. Turn the plants frequently, to prevent them growing to one side.

“*Camellias*, when in bud and flower, should never be allowed to become the least dry, neither confined from fresh air. The effects would be, that the buds would become stunted, dry, and drop off. Therefore to have these in perfection, attend strictly to watering. Give frequent airings, and wash the leaves once in two weeks with water. Never keep them above one day in a room, where there is a strong coal fire, and not above two days where wood is used as fuel. Most *Camellias*

will bear three degrees of frost without the smallest injury, so that they are easier kept than *Geraniums*, except when they are in bloom. In that state, frost will destroy the flowers. The air of a close cellar is destruction to the buds."

N. B. We hope to be able to give, in an early number of the Magazine, an article upon the varieties and cultivation of the *Gladiolus*—some new and fine ones have been recently introduced. ED. MAG.



CLARKEA PULCHELLA.

(BEAUTIFUL CLARKEA.)

THE Clarkea, a very pretty annual, recently introduced to cultivation here, is a native of the Rocky Mountains, at which place it was discovered by Capt. Clark, who accompanied Capt. Lewis, and after whom it was named. It is easily raised from seed, which should be sown in March in the green-house, and in May in the open ground; or a better way is to sow the seed in September, which will ensure a much more perfect flower.

[For the Horticultural Register.]

KALMIA LATIFOLIA.

I HAVE been surprised that so little attention has been paid to the plants of our own country, rivaling as they do, in beauty and number, that of any other, the tropical regions excepted.

Among the many shrubs, that embellish the scenery of the interior of the country, the *Kalmia latifolia*, may be considered one of the most elegant among the many others, of which I may give some description at a future period.

Kalmia latifolia belongs to the class Decandria, order Monogynia, of Linnæus, and of the natural order Rhododendron of Jussieu.

It bears the common names of Mountain-Laurel, Laurel, Ivy, Calico-Bush, and Spoonwood. The generic name was given by Linnæus, in honor of Peter Kalm, a pupil of his, professor at Abo in Sweden, author of travels in America. I have not seen this shrub near Boston. At a distance of thirty miles, in a north and north-west direction, it begins to enliven the woodland scenery.

Its general height is from five to ten feet, but may sometimes be found rising from fifteen to twenty feet among the rocks and thickets, almost impenetrable by its crooked and unyielding trunks, locked and entangled with each other. Its leaves are of a coriaceous texture, oval acuminate, entire, and about three inches long; partially renewed from year to year, evergreen, giving much life to the forests in the winter by their deep shining green. The leaves are narcotic and poisonous to cattle.

Calyx five parted; coral, wheel salver form, with ten horns beneath, and ten cavities within, containing the anthers, until the pollen is mature, which, by the full expansion of the corolla, are suddenly released from their confinement, by which process the pollen is disseminated.

The flowers are disposed in large corymbs at the extremity of the branches; numerous, of a pure white, blush, or a beautiful rose color, and more rarely a deep red.

The season of flowering is in the months of June and July. Nothing can exceed the magnificence of its appearance when in full bloom.

As far as the eye can penetrate the deep recesses of the forest, these shrubs are richly laden with their beautiful flowers, the white and pink of the expanded corymbs finely contrasting with the different shades of red by which those in a less forward state are touched. The brilliant effect is much heightend by the richness of the surrounding foli-

age, and the wildness of its favorite location : flourishing best on rocky and secluded steeps of deep ravines, or on the precipitous banks of rivers and mountain brooks.

The seeds are minute, contained in small globose five-celled capsules, which remain through the winter.

The soil in which it best succeeds is soft, loose, and cool, with a northern exposure. It is not altogether confined to the shades of the forest, but may also be found occupying large tracts of pasture ground, much to the annoyance of the farmer, who has not had energy enough to extirpate it from his grounds. The reputed noxious qualities of this elegant plant lessen that esteem, which its beauty claims, especially to those, whose eyes are darkened to the beauties of the vegetable creation.

I believe it is not common for cattle that are well fed to meddle with its leaves, although it is said when turned out in the winter to take care of themselves, as is the practice in some of the middle and southern states, when pinched with hunger they will eat them, and many die in consequence. I have never known an instance of the kind in this region.

Why is not this beautiful shrub more often seen in company with exotics of far less merit? Is it because it has not been far-fetched? Or is it because it is reputed to be of difficult cultivation? It may be that the last is one reason, as I have often heard it said that it was impossible to make it live. This impression is so common that few try the experiment.

I have found, however, that this is not the case, but that, with care in the selection of plants, by transplanting them at the proper season, and planting them in a suitable exposure and soil, there is but little difficulty in making them live. The best time for transplanting is in the month of April. On no account should old shrubs be taken, however vigorous and healthy they may be. You might as well take an old tree with the expectation that it would flourish. Search should be made for young seedling plants, from nine inches to two feet in height, which may occasionally be found on the northern declivity of some steep bank, or in some situation secluded from the noonday sun.

The plants should be taken up with balls of earth attached to their roots, and immediately done up in moss, if to be conveyed to a distance. They should be planted, of course, in a shady situation, under a tree, its natural place, or on the north side of a house or wall. If planted in a place exposed to the scorching sun, without some shade in the middle of day, for the first year, the probability is they will die, unless the soil is moist and cool.

New and beautiful varieties may undoubtedly be produced by sowing the seed ; but much care and patience will be necessary. New varieties can be propagated by layers, as they are so found increased in their natural positions in the forests, where their low branches have been covered with leaves, &c. It was my intention to propagate from a beautiful deep red or crimson one I discovered in my rambles last year, by layers ; but lately in searching for it, I found, to my great disappointment, that the owner of the land had been making sweeping work not only with this rare variety, but also of the whole race.

I hope soon to see not only the *Kalmia* but many other beautiful indigenous shrubs and plants more generally introduced into the pleasure-grounds of amateurs and the lovers of floriculture. Yours, &c.

Lancaster, Hort. Garden, Dec. 23, 1834.

X.

[For the Horticultural Register.]

ON THE CULTIVATION OF CELERY.

It appears to me that a few practical hints on the cultivation of this useful and delicious vegetable might prove interesting and serviceable to many of your readers. I beg to premise that it is a mere detail of the methods I have practised this summer, by which I have raised celery in heads of two and two and a half feet high, of which twelve to eighteen inches are blanched and tender ; they are single heads, without offsets, and many four and five inches in circumference. This method has one convenience, which is, that the young plants are raised in the open ground, without glass or hot-bed.

In the beginning of May, later or earlier, as the season may indicate, dig and pulverise well about six square feet of well manured and open ground—water it very lightly, but thoroughly, with a nose on the watering-pot, early in the day, then sow your seed and water again thoroughly in the same way. Cover up this bed lightly with a double layer of Russia mat, which should be dry, and kept down at the corners with stones ; the sun, striking on the mats, penetrates them, and causes a gentle moist heat to rise from the earth ; this is the most favorable state of an atmosphere for the vegetation of seeds, and the celery, particularly if not fresh, is very difficult on this point ; the covers should be maintained in as dry a state as possible, (after heavy rains, the upper mat might be changed,) because, if wet, considerable evaporation takes place in the night, which is always productive of cold, and would be apt to rot the tender shoot just piercing the seed ; on the other hand, if dry, it prevents the escape of heat when the

sun's rays have left the earth, and retains underneath sufficient warmth to prevent any check in the vegetation ; in a fortnight or three weeks, according to the season, little yellow and white sprouts will appear ; when these are one quarter of an inch high, the upper cover should be removed, that there may not be too much weight on the young plants, and if the weather continues mild, in a few days afterwards, remove the other. If well watered in the beginning, it will scarcely need any further moisture during the first process ; but those who practise this method will hardly be restrained from peeping under the mats once or twice during the fortnight, when, if sultry weather has prevailed, their own judgement will guide them on this head.

The second part of the method is to have another piece of ground, double the size of the former, prepared in the same way, and when the young plants are in their fourth leaf, or about two inches high, take them up and transplant them carefully into this fresh bed, about one inch asunder, first trimming the roots a little.

If well watered and weeded, by the first of July they will have attained sufficient growth to be removed into trenches, which should be prepared in an open, well exposed spot, by digging them two spades deep and two and a half feet wide, leaving three or four feet distance between the trenches ; on this space is to be piled up, like a bank, the earth taken from the trenches. Put about four inches of good manure at the bottom of each trench, and dig it in ; take up the plants, and previous to putting them into the earth, trim the roots very carefully, being sure to cut off the end of the tap root, and eradicate all little shoots and radicles, where the heart joins on to the root, as these shoot up and produce that mass of small heads, seen in our markets, instead of one large, solid, handsome plant ; place them about three inches distance and water well for the first week. As the plant grows, gently fill in the trench with the earth on each side, taking care not to throw in large lumps, which twist and contort the celery, and spoil its beauty ; and continue earthing up until there is a bank above ground as high as the trench was deep.

I prefer digging the trenches east and west, because the bank on each side shades the young plants in July and August from the rays of the hot sun, and in September and October, when it is desirable the celery should advance as much as possible, the southern bank, earthed up, imbibes the heat and retains it.

I believe, by covering up the trenches well with pine and savin boughs, it may be dug fresh all the winter ; but I have placed mine in an upright position in the cellar, half covered with earth and kept moist—they appear to suffer but little.

I have been rather explicit, and given my reasons for each operation at the risk of being thought too prolix ; but, whenever I set earnestly to cultivate a plant, I have generally found directions in books rather too vague, and here and there a link wanting in the chain, which gave me trouble to annex ; those, therefore, who are well acquainted with this process, must excuse this in favor of those who are not so efficient.

I. E. T.

N. B. In our next number we shall give an account of the different varieties of the celery.

[From Loudon's Magazine.]

COILING SYSTEM OF CULTIVATING THE VINE IN POTS.

By Mr. John Mearns, F. H. S. Gardener to his Grace the Duke of Portland, Welbeck, Nottinghamshire.

SIR,—As I have communicated an account of my coiling system of cultivating the vine in pots to several persons, and have also given a statement of my experiments to the London Horticultural Society, I feel it to be a duty also to lay my practice before you.

This coiling system is certainly a completely new feature, and, I think, a very valuable one, in the art of grape-growing. Is it not a matter of great importance that, in consequence of my discovery, a gardener, who may go to a situation, in the autumn, where no grapes have previously been growing, may be enabled to produce there easily, for the ensuing season, from five hundred to one thousand bunches of fine grapes ? All that are wanting to enable any gardener, so circumstanced, to do this, are, the prunings of the vines from any garden, that would otherwise be thrown away, and, of course, a convenient frame, pit, or house, for growing them in. If abundance of shoots can be procured, and there is a sufficient extent of frames, &c. either temporary or permanent, two, three, or five thousand bunches may thus be produced in a garden where grapes were never seen before.

The coiling system is nothing more than taking a long shoot or cutting from a vine, cutting out all the buds except a few at the upper end, and then beginning at the lower end, and coiling the shoot round and round, say from three to six or eight times, the inside of a pot of twelve or fourteen inches or more in diameter. The shoot may be of any length, from six feet to thirty feet, and it may be entirely of last year's wood ; or the greater part of it may be of old wood, provided three or four feet at the upper end be of new wood ; because, as every gardener knows, the buds from young wood are more certain than those from old wood of producing blossom the first year. The vine being coiled round in the pot, and plenty of drainage being put in the bottom, take care that the end of the shoot left out of the pot, on which the fruit is to grow, be not injured at the point where it separates from the coil. This shoot may be two or three feet long ; and, to keep it

steady, it may be tied to a stake, or coiled round two or three stakes. After this, fill up the pot with a rich loamy soil, pressing it firmly against the coil, as if you were making firm the end of a cutting. Unless this is done in such a manner as to bring every part of the coil in close contact with the soil, it will not root so readily as it otherwise would do. The next operation is, to wrap up all that part of the stem which is above the pot with moss, and this moss must be kept constantly moist till the grapes are formed. The pot should now be plunged in bottom heat, either in a pit or forcing-house; but, wherever it is plunged, care must be taken to regulate the temperature of the atmosphere of the house, in such a manner as to prevent the top of the vine from being excited before the roots. If this should happen, the young shoots produced will soon wither for want of nourishment. Abundance of air, therefore, should be given for several weeks, so as never to allow the temperature of the atmosphere of the house, frame, or pit, to exceed forty-five or fifty degrees, while the temperature of the medium in which the pots are plunged may be as high as sixty-five or seventy degrees. When, by examination, you find that fibres have protruded from the coil, the temperature of the atmosphere may then be gradually raised, when the buds will break and the shoots will grow apace.

The shoots proceeding from that part of the stem above the pot, should be led up to within eight or ten inches of the glass, and there trained, at that distance from it, towards the back of the pit or house. It is needless to state to the practical gardener, that each shoot will require to be shortened, freed from laterals, &c. Each vine will produce from three to twenty or more bunches, according to the length of coil and variety of grape. I have now (Jan. 17. 1834) upwards of two hundred coiled branches in pots, and nearly fifty of them in action; some with twenty bunches of fine grapes on them.

I was asked the other day, whether vines so treated would not require frequent shiftings into larger pots; or, at least, to be shifted once a year. To this I answered, that while we had a plentiful supply of prunings from our own vines, or could procure them from those of our friends, the best mode would be to treat the plants, after they had borne one crop, as we do the roots of asparagus and other plants that we force; that is, to throw them away. If, however, you should wish to keep the coiled plants a second year, and the pots should be found to be too full of roots, turn out the ball, shake the soil from the coil, and cut away all the roots close to the shoot; then re-pot it as before. If this be done in winter, the plant will produce an excellent crop the following season; probably a better one than if the roots were allowed to remain, and the ball shifted into a larger pot or box. The pot or box is, in either case, soon filled with young vigorous fibres, like a hatch of young maggots, each eager for food, and consequently sending it up in abundance to supply the crop above. Can there be a doubt but that this is a far superior mode to keeping pots, or even fruit-tree borders, filled up with old inert roots?

Before my bunches are clearly developed, I have thousands of eager mouths or spongioles, extending along the coiled shoot, and each gaping for food; some of these rootlets are three feet long, and, before the vines are out of blossom, many of them are six feet in length, and

matted round and round the pot. You will easily understand from this, how important it is to supply vines so treated with liquid manure, either by watering from above, or by a supply from a saucer or feeder from below.

Welbeck Gardens, Jan. 16, 1834.

Since we received the above account from Mr. Mearns, we have heard the article on the same subject, to which he alludes, read before a meeting of the Horticultural Society. In this paper, the names of a number of varieties are mentioned, which had been thus fruited; including the muscadines, black clusters, black Hamburg, black Damascus, black Tripoli, muscat of Alexandria, &c. Mr. Mearns also mentions that, hearing of a new and fine variety of muscat, called the Candia, which had been a few years ago introduced into the Duke of Buccleugh's gardens, at Dalkeith, he wrote last autumn to Mr. Macdonald, the gardener there, for some of the prunings of this vine, and that he had, at the time the paper was written, (Feb. 1834,) plants of the Candia at Welbeck, from coils of the prunings received, with numerous bunches of fruit on them, which would ripen in April and May next.

We regard this discovery of Mr. Mearns as one of considerable importance, not only as showing what may be done in the particular case of the vine, but as tending to familiarise practical gardeners with some points in vegetable physiology. It is clear that the coiled shoot is a reservoir of nutriment to the young growth; in the same manner as the tuber of the potato is an accumulation of nutriment for the young shoots, which proceed from its buds or eyes when planted. To a certain extent, long shoots of any tree whatever if buried in the soil, either coiled or extended, and two or three inches or feet of their upper extremities kept out of the ground, would produce leaves, blossoms, and even fruit, the first year: but those shoots, which, from their nature, do not freely emit fibres, or do not emit them at all, would perhaps not set their fruit; or might even cease to produce leaves in the course of a few months. The reason, in that case, would be, that the reservoir of nourishment soon becomes exhausted, if it is not supplied from the soil; and that the only mode by which the shoot can obtain nourishment from the soil is by means of fibres, which it has either no power of producing at all, or cannot produce in sufficient abundance. The advantages of the coiling system are, that an almost unlimited number of fibres or mouths are produced by it, in a very limited portion of soil; that this soil can be rendered of the most suitable description for the given plant, supplied abundantly with liquid manure, and renewed almost at pleasure. The use of cutting off all these fibres or mouths, when they get too long, is merely to keep them within a limited space; for when a fibre elongates, unless it has, at the same time, room to branch out, so as to produce other fibrils, it can take in no more nourishment than when it is short, say an inch long; because the nourishment is only taken in by the spongiole, or point of the fibre. The whole art of rapid cultivation, both in ligneous and herbaceous vegetables, proceeds on this principle. The Lancashire gooseberry grower has recourse to it, when he shortens the roots of his plants at

a certain distance from the stem, every two or three years; thus causing them to emit fibres, for which he prepares a circular trench of rich soil round each tree. Mr. Mearns's mode of treating the peach, and other fruit trees, and the mode of cultivating cabbages, and other plants of that kind, by pricking out from the seed-bed, and transplanting and re-transplanting into rich soil, instead of sowing where the plants are finally to remain, all proceed on the principle of multiplying the mouths, and increasing the supply of rich food, within a limited space. The result of this is, both in ligneous and herbaceous plants, that maturity is obtained with less magnitude than in a natural state, and in a much shorter time. The essential principle is, the abundant supply of rich nutriment; and the same principle produces exactly the same results in the animal kingdom. Hence the small-sized, early-fattening varieties of cattle, sheep, swine, &c.

Where a plant or animal is grown or reared chiefly to be consumed as food, the application of this principle seems desirable and advantageous; but when the natural character and beauty of the plant or animal are desiderata, a more natural mode of treatment, or one more resembling that which is generally followed, is requisite for attaining the end in view.

All intricate operations of culture, such as those of the coiling system, the chambering of the roots of trees, taking up and replanting, particular modes of training, ringing, &c. it should never be forgotten either by gardeners or their employers, are only calculated for places where abundance of men are kept, and where also there is considerable skill in at least one or two of these men. When these and similar operations are attempted in places where there are scarcely hands enough to keep the garden in order by the common practices, failure is certain to attend either the new practice or the old ones, and probably both. *Cond.*

[From the Floricultural Cabinet.]

THE DAHLIA.

BY J. MANTELL, F. L. S.

THE Dahlia is a native of Mexico, and was first introduced in England in the year 1789, at which period it attracted but little notice, and the species was soon lost. Although this flower was re-introduced by Lady Holland, in 1804, it is only within the last few years that the attention of the florist has been directed to its cultivation and improvement. It is now admitted to be the chief ornament of the flower-garden during the autumnal months, and, independently of the great variety and splendor of its flowers, it is valuable to the florist as filling up a void at that season of the year in which but few other plants are in blossom.

It has been computed that not less than twenty thousand seedling Dahlias are raised annually in this country. The facility with which they may be raised—the comparatively short period which intervenes

between the time of sowing and that of flowering—and the great success which has hitherto attended this mode of propagation, will, no doubt account for the extensive cultivation of this highly esteemed flower.

The Dahlia is propagated by cuttings and by divisions of the root, and new and beautiful varieties are constantly raised from seed. The seed is usually obtained from the finest double flowers, but some successful propagators prefer that procured from semi-double varieties, and we believe that some of our finest Dahlias have been raised from semi-double seedlings. The seed should be collected early in the season, as soon as the blossoms have withered and the receptacles are sufficiently dry; and if the seeds be allowed to remain in the calices, they will retain their vitality better than if detached from the receptacles.

The seed should be sown in large pans or pots, about the middle of February, and placed in a hot-bed frame. The young pots require to be potted off singly into the smallest-sized pots, soon after the cotyledons are above ground, and when the first pair of leaves are sufficiently developed. They should then be placed in the frame, nearly close to the glass, to prevent them from being drawn up weakly. When of sufficient size, they may be re-potted, placed in a cold frame, and protected at night, till the middle of May, that being the period of planting them in the open air.

Those who propagate extensively, sow the seed in hot-bed frames the beginning of March, and during the month of April, instead of potting, set out the young plants on a slight hot-bed, covering them at night with mats. With the view of obtaining new varieties, some propagators transfer the pollen from one flower to another, by means of a small camel-hair pencil, in which case the flower intended to receive the pollen should be covered with a fine gauze bag, a day or two before the florets expand, and the covering should be continued a few days after the operation is performed. This method is seldom practised, unless for the sake of experiment, as the ordinary mode is found very successful in producing fine double flowers.

Cuttings may be made in March. The old roots should be placed in a hot-house, or in a hot-bed, and the tubers should be covered with mould, sand, or finely-sifted tanners' bark, leaving only the crown exposed. They will soon put forth shoots; these should be carefully detached when about two or three inches in length, and planted singly in small pots filled with a compost of equal parts of well-decomposed leaf-mould, frame manure, and fine sand, to which should be added a sufficient quantity of finely-sifted garden mould. After the cuttings are inserted, they should be put into a hot-bed, carefully shaded from the sun, and protected at night by mats. If, in applying the linings, steam should arise, the plants will be liable to damp off, unless the lights be sufficiently raised to allow the rank steam to escape. In about a fortnight or three weeks the young plants may be removed to a cold frame, and gradually inured to the open air.

Where extensive propagation is required from new and choice varieties, the roots are usually placed in a hot-bed, and every shoot taken off when about two or three inches high, care being taken not to injure the buds which surround the base of the shoot, for if these are

injured or broken off, fresh buds will not be developed from that portion of the crown.

Where only a limited supply of strong and vigorous plants is required, we have recently discovered that the finest plants are produced by detaching the young shoots, when about two or three inches high, so as to include the cluster of buds surrounding the base of each shoot. Some care is necessary in this process; the shoot should be held near its base by the finger and thumb, and by a slight motion of the hand it may easily be detached. If the operation be adroitly performed, the base of the shoot will present a convex appearance, surrounded by a number of incipient buds, and a corresponding concavity will be found in the crown of the plant from which the shoot has been extracted. Plants raised by this mode not only produce the finest flowers, but the crowns invariably break the following spring, which is not *always* the case with plants raised from cuttings in the ordinary manner: it has been asserted that the cause of the failure has, in many instances, arisen from the removal of the incipient buds at the base of the leaves of that portion of the cutting which is usually inserted in the ground.

There can be no doubt, however, if the buds be removed, the cutting will readily strike root, producing luxuriant foliage and a profusion of flowers. But although the tubers are numerous and fully formed, it will, on inspection, be found that they are merely attached to a hollow stem, and, consequently, the crown being absent, no buds can possibly be developed by any subsequent treatment. It is therefore important, if the perpetuation of the plant be required, that the buds be not removed. Some propagators, indeed, on receiving new plants, examine the roots, and unless a portion of the crown be attached, they cut off the shoot close to the surface, treating it as a cutting, in the ordinary manner.

The plants, whether raised from seeds or from roots, may be planted out into the open borders from the middle of May till the beginning of June. They are usually planted from three to four feet apart; but if planted from four to five feet apart, they will not attain so great a height, and if trained to a single stem, will in general produce much finer flowers. The borders should be well manured every spring before planting, and at the same time about an equal part of good fresh soil should be added. The Dahlia will succeed in almost any soil, though a light sandy loam produces the finest plants: the variegated and striped varieties exhibit their colors more distinctly when planted in a peaty soil. The plan of training Dahlias to a trellis appears a good method of securing them, for when tied up to stakes the wind frequently twists the plants and destroys their tops, but the former mode secures them against all winds, and exhibits the flowers to the greatest advantage: three or four stakes placed angularly round the plant, and the stems tied to them, will also answer the purpose.

To procure fine flowers for floral exhibition some cultivators train the plants to a single stem, removing all superfluous side shoots, as well as flower-buds, leaving only one or two flowers to expand. The soil should be kept constantly moistened, and when the plants come into blossom manure water should be liberally supplied. It has been asserted that some of the spotted varieties succeed best in a poor soil

destitute of manure, and that success may generally be insured by removing the self-colored blossoms as they appear. The luxuriant growth of plants may be greatly retarded by treading the earth firmly round the roots. When the soil is of a loose open texture, evaporation should be checked by mulching the plants, and if the soil be covered with moss the moisture will be more effectually retained, and it will give the borders a neater appearance.

When the blooming season is near its close, about four inches thick of decomposed bark, or of leaf soil, should be laid over the roots, extending two feet round the stem of each plant, to prevent the crown being injured by sharp and sudden frosts.

The tubers should be taken up on a dry windy day and the soil carefully shaken off, so as not to twist the roots. Having been removed to an airy situation in a shed, they should be placed singly over the floor, till the soil remaining on the tubers be dry, when they should be laid on shelves secure from damp or frost, and be covered with dry sifted tan or gray sand: they will, if so managed, keep perfectly sound till the following spring.

Choice seedlings or small tender tubers may be preserved during winter by placing them in pots of sandy loam, and giving them at the time of potting a slight watering, keeping them afterwards in a dry situation.

CRITERIA OF A FINE DOUBLE DAHLIA. The flower should be erect and stand completely above the foliage, for if the peduncle be short, so that the flower be hid among the leaves, it will not be displayed to advantage.

Form, color, and size are considered the essential properties of a fine Dahlia.

1. *Form.* All good judges allow that perfection in form consists in the near approach to a hemisphere. The Springfield Rival may be given as an instance of the nearest approximation to a perfect flower: it is, however, too flat in the centre, and the outward petals are reflected. It is essential that the outline should form a true circle, and consequently the petals should be regularly disposed, rounded, smooth at the edges or rose-leaved, and slightly concave, but not so much so as to let the back of the petals be seen in the front of the flower. Those flowers whose petals are narrow, pointed, notched, or fimbriated, as well as those that are flat or convex, however desirable for the flower border, are objectionable as show flowers, as are also those which when fully blown exhibit the eye or disk. In some Dahlias the petals near the centre converge, and conceal the disk, which, when the florets are fully expanded, become exposed; these are, therefore, pronounced by florists imperfect flowers.

If the hemispherical form be assumed as the point of perfection in the Dahlia, those flowers would be preferred that rather exceed than fall short of this standard. The Countess of Liverpool has been adduced as an illustration of the former, and Lady Grenville of the latter, and the mean between these two examples constitutes an excellent criterion whereby to judge of perfection in the form of the Dahlia.

2. *Color.*—As it regards color, much must depend upon taste, but selfs, of whatever color they may be, should be bright and distinct.

In striped, spotted, tipped, or variegated varieties, the colors should be well-defined and every petal uniformly and distinctly marked. Those that are pounced, blotched, variously or irregularly marked, are inadmissible as show flowers.

3. *Size*.—When other properties are equal, size will determine the preference; but in judging of a good Dahlia, form must have the pre-eminence, then color, and lastly, size; but in no instance should either form or color be sacrificed to size. The relative proportions of excellence in these criteria have been thus estimated:—form three, color two, size one. Thus a Dahlia, possessing the properties of form and color, would be judged superior to one having color and size, the relative proportions being as five to three. By this standard the comparative merits of this class of show flowers have been estimated by the censors at the exhibition of the Metropolitan Florists' Society.

[From Loudon's Magazine.]

CROPPING BORDERS IN WHICH FRUIT TREES GROW.

SIR,—Having for some years been an advocate for not cropping the borders of fruit trees, I have noticed, with pleasure, that you have several times called the attention of your readers to the subject. I beg leave, therefore, on the present occasion, to make a few observations for the consideration of those who are of a different opinion; as I think that, before long, it is very likely that, instead of having a border of ten or twelve feet wide close to the wall to be constantly dug and cropped, and a gravel walk four or five feet wide beyond it, we shall see a wide gravel walk close to the wall, over a previously prepared border; for I am persuaded it is owing more to the digging and manuring the border, than to any other circumstances, that there are so many failures of fruit trees. I have seen the above method (of graveling the borders to walk upon) practised on a small scale, and I am not aware of a single failure. I have often noticed that, in the formation of borders to vineries, or green-houses where vines were to be planted, after much expense and labor bestowed, it has ended in disappointment; the cause of which I consider to be the planting of the borders with vegetables, if in the kitchen-garden, and with flowers, if in the flower-garden. Perhaps it may not be amiss to mention here, that many persons who are very particular about pruning their vines in the autumn, to prevent their bleeding, will nevertheless delay digging the borders till February or March, when all the roots within the reach of the spade are sure to be cut and made to bleed, without being observed. In many cases where prepared borders have failed to produce fruitful vines or other trees, it is very often to be seen that a tree or vine, planted against a building, merely for the sake of hiding it, seldom fails to produce a crop of fruit, although it has nothing below but the natural soil, and this covered over with gravel, or other materials, to form a walk. I could mention several instances of this kind, some of which are within a few yards of where I am writing, and many others in the neighborhood; and I have no doubt that many of your readers will be

able to see the same, after it has thus been pointed out to them. One of the instances which have come under my observation is within a short distance of my cottage. It is an extensive range of glass, used chiefly for stove and green-house plants, with a vine trained up each rafter, not one of which is worth the trouble bestowed on it annually in tying, &c. The roots of these all running directly into the borders and clumps of a flower-garden, it is not thought that the fault can be in the soil, as it is so well cultivated for the plants in it, but this I consider to be the only cause of their failing; as within a few yards of these is a building of considerable height and length, of the same aspect as the others, having vines trained all over it, which are planted (as far as I can learn) in nothing but the natural soil, having a wide gravel walk over their roots, beyond which they have nothing else but a lawn.

They have, therefore, in all probability never been disturbed since they were planted. These I have known for several years, but I do not recollect ever having heard of their failing to produce good crops. Young vines, also, which have been planted amongst them, have begun to bear. Instances of this kind are so numerous, in front of dwelling-houses and other buildings, that it is unnecessary for me to say any more on the subject; I shall therefore conclude with hoping that those who have hitherto attributed it to the soil will reflect whether in some measure it may not be owing to the cause I have mentioned.

I am, Sir, yours, &c. R. T.

[From Loudon's Magazine.]

FRUIT ON PEAR TREES.

A Successful mode of securing a Crop of Fruit on Pear Trees. By Mr. B. Saunders, Nurseryman in the Island of Jersey.

SIR,—The fact that many disappointments are experienced by gardeners, and also by amateurs, in their endeavor to procure crops of many fine sorts of pears, is so well known, that it needs only to be mentioned to be assented to. The practical application of the following suggestion will, however, remove, in many instances, these disappointments, and insure good crops.

There are many varieties of pears, which, every year, blossom very abundantly; and yet, to the great disappointment of the cultivator, the whole of the flowers fall off without setting a single fruit, although the soil and situation may be very congenial, and every care has been taken in planting, &c. This is the case with the Duchesse d'Angouleme, and with many others I could mention. The trees of these varieties, according to my observations, devote the whole of their strength and sap to the production of a superabundance of blossoms; but, unless they are assisted by art, they have not sufficient strength to set their fruit. In order, then, to remedy this defect, and to assist nature as much as possible, I have adopted the following plan, with great success and satisfaction, for the last three years:—

Take a pair of scissors (such as are used for thinning grapes), and go over the corymbs of flowers, or rather of flower-buds, as soon as

they are sufficiently elongated to allow the points of the scissors to pass between them (that is, some days before the blossoms are expanded,) and thin them; leaving only five or six blossoms in each, according to the size of the corymb; always preferring to leave the flowers which have the stoutest stalks, and those which are nearest the centre. This operation has the effect of diverting the sap to the flowers which remain, and gives them sufficient strength to set from one to three fruits in each umbel; which will prove a sufficient crop, and well repay the labor bestowed. Another mode, less tedious than the above, is also practised here, with success, on young trees. It consists in deferring that part of the pruning of them which is termed shortening the young wood, until the blossoms are in about the same state as is described in the above directions for thinning, and then shortening them back to the required length. This also checks the progress of the sap, and enables the tree to set fruit very freely. I am aware that my plan is a tedious one, and one that is almost impracticable on a large scale; but it is decidedly an excellent plan for dwarf trees in gardens, whether they are cultivated in the *quenouille* mode, against walls, or as espaliers; as these trees come within the reach of the hand, of a pair of steps, or of a ladder. In the hope that these remarks may, through your indulgence, avail my fellow-laborers in horticulture, at the coming season,

I am, Sir, yours, &c.

BERNARD SAUNDERS.

We recommend the above article to the particular attention of young gardeners. The system of thinning out blossoms, suggested in the above paper by Mr. Saunders, is applicable to all fruit trees; and, if generally adopted, would insure important results. We know an instance of a large apple orchard, the property of a commercial gardener in Kent, in which a knife has never been used: every thing is effected by disbudding, and pinching out young wood with the finger and thumb. The proprietor is not a scientific gardener; and he adopted the above practice from no particular theory, but simply from his own observation and experience, to save labor, and to insure good crops of large fruit.

[From Loudon's Magazine.]

ON GROWING LARGE GOOSEBERRIES FOR EXHIBITION.

BY MR. M. SAUL.

Sir,—In the year 1827, I sent you an account of the mode then practised in this country, of training gooseberry trees, so as to make them produce large show fruit. At that time, it was generally supposed that to obtain fine show gooseberries it was necessary to train the trees; and that, if so treated, in five or six years they would be found to have become strong, and would be sure to produce large fruit. The result of seven years' experience, however, proves that training is quite unnecessary. Gooseberry bushes are only found to produce fruit suitable for exhibition when they are four or five years old; because the fruit after that age decreases in size, though it in-

creases in number. Gooseberries rarely, if ever, produce fruit of a very large size for more than two years together; and generally only one season. The mode usually now practised here is, to take a gooseberry tree out of the nursery in its second year. The next year (being the first after transplanting) it is not allowed to bear any fruit; but the year following, that is, in the fourth year of its age, it is in its prime, and will produce its largest and finest fruit. We seldom hear of the same tree producing equally fine fruit for even two years in succession: the Bumper, which produced the largest berry in 1832, weighing 30 dwts. 18 grs., the succeeding year did not produce any berry weighing above 22 dwts. 5 grs.; and many other examples might be given.

ON A NEW METHOD OF WRITING ON ZINC, FOR LABELING PLANTS.

The following, from Paxton's Horticultural Register, will prove useful to Gardeners:—Mr. Henry Braconnot, the celebrated French Chemist of Nancy, to whom we are indebted for the curious transformation of rags and other similar vegetable substances into starch, gum, and sugar, by the agency of Oil of Vitriol, and whose name is well known in the chemical world for various researches connected with the analysis of vegetable substances, has given in the last number of the *Annales de Chimie et de Physique*, a preparation for writing on plates of zinc to label plants. The writer, having a dislike to painting in oil, which is often inconvenient, and never endures a long time, resolved to turn his attention to some other way which would prove both ready and durable. The system of writing on zinc with a black crayon, which was accidentally discovered by M. Symon, an Amateur at Brussels, and noticed in the *Revue horticole* for October, 1832, and the *Bon Jardinier* for 1833, possessing many imperfections, Mr. Braconnot to try some experiments, being anxious to obtain a liquid, or a species of ink, which would be perfectly durable when exposed to the changeableness of the weather, and also one with which he could write with ease. This end, after several proofs, he is induced to believe he has in a great measure attained. If it answers, he will have done both the botanists and amateurs a real service. The preparation is as follows:—

Take Verdigris in powder one part,
 Salomoniac in powder one part,
 Lamp black (Mori de Fumea) half a part,
 Water ten parts;

Mix these in a glass or pot mortar, at first only adding as much water as will mix it well, then add the remainder of the water, when placed in a vessel, let it be well shaken up from time to time, and in a few days it will be ready for use. This is not only excellent for labeling plants, but also for marking objects it is wished to preserve in low, wet situations, and for marking key, becoming quickly dry and being very durable.

[From Loudon's Magazine.]

PURPLE BROCCOLI FROM SLIPS.

On propagating the Purple Broccoli from Slips, and on the Agency of Manure prepared from Sea Weed in improving various Vegetables. By Mr. T. Rutger.

SIR,—On reading Mr. Kendall's article upon the propagation of cabbages from slips, I feel inclined to draw the attention of your readers to the growing of purple broccoli in the same way; a practice which was adopted, some years since, in the west of Cornwall, and, for aught I know, may be still continued there. The variety thus treated seemed to be rather peculiar in its habits, and compact and handsome in its growth. The head being removed for culinary purposes, the method was to let the stump remain, which had already thrown out sprouts below; and these, on being left to grow, showed no indication to form heads for that season. In the month of June, the sprouts were sufficiently advanced to be slipped off; and, after being exposed a day or two in the sun to cauterize the wound, they were planted out in the usual manner. In two or three weeks they had taken root, and in the course of the autumn made fine stocky plants. I have seen many instances of the broccoli thus grown having heads three feet in circumference, and as close and compact as possible; but this extraordinary luxuriance was, I believe, principally owing to the nature of the manure used.

This manure consisted principally of sea weed, of the genus *U'lvæ*, several varieties of which are drifted on the sands in immense quantities in stormy weather. The weed forms a principal article of manure to the farmers, as well as to the market-gardeners in the neighborhood of Penzance and other parts in the west of England, and is sought with avidity by both classes after a heavy gale, it being found, from experience, to be an excellent manure for a single crop. The farmers in that neighborhood mix it up with earth collected from furrows ploughed at certain distances in the field, and with sea sand, and, thus mixed, it rapidly decomposes, and soon becomes fit for use. The market-gardeners and cottagers frequently make use of it as a manure, in its raw state, for onions, potatoes, &c. For onions, the ground is so prepared, that, after a layer of it is spread over the surface, there may be a sufficient quantity of earth to cover it about two or three inches thick; after this has been leveled, the seeds are sown and raked in, and the produce, in many instances, is but little, if any thing, inferior in size to the onions imported from Lisbon. For potatoes, it is used either by putting a layer of it over the sets, whether in furrows or beds, and afterwards covering it with earth; or putting a layer of it first, placing the sets upon it, and then a covering of earth. In reference to the kidney potato, I think I may safely aver, that in no part of England are potatoes of this description to be found equal in quality to those grown in the neighborhood of Penzance; where, by extraordinary labor and care, they are frequently brought to market by the middle of May. The sort principally grown for an early crop is known there by the name of "the Yorkshire kidney." I am not certain if this be its proper appellation, but it forms a long, handsome, flattish, tuber, with the crown of a purplish hue.

With regard to the broccoli noticed above, in the ordinary course of garden culture, it forms a head averaging about two feet in circumference; its flavor is excellent, and, as such, it may be well recommended to notice; more especially as, by its being propagated from slips, it is secured from any variation from its natural habit.

[From Loudon's Magazine.]

A DESCRIPTION OF A MODE OF CULTIVATING ONIONS.

BY MR. WILLIAM WHIDDON.

SIR,—Your correspondent, John Mitchell, jun., treats on the culture of the onion. I write not to dissuade him from following the plans which his own observation has suggested to him, but to state my own experience on this subject, as it differs widely from his. In March, 1830, I lived as gardener to J. B. Praed, Esq. of Tyringham, Bucks; and, having occasion to make an asparagus bed, I resolved upon sowing onions, of the Deptford sort, in drills between the rows. The ground was not prepared in the way usual for asparagus, but turned over to the depth of one spade only. The soil being of a tenacious and cohesive quality, I used a quantity of coal-ashes and rotten dung; and, all being in readiness for the asparagus, I proceeded to plant it in rows eighteen inches asunder, and the onions in drills between these rows. I finished each row as I proceeded, which caused a great deal of trampling, and the ground was remarkably hard after the whole was completed. When the crops began to grow, I thought of hoeing, thinning, &c.; but, being a native of Northampton, where some of the best onions in the kingdom are grown, I recollected seeing, at different times, onions growing in the hard walk, and these the best sample of a whole acre. I accordingly resolved to let my crop take its chance. Weeding and thinning were performed by the hand, which greatly increased the solidity of the soil. My crop was pulled up without attention being paid to any particular time or form; the onions composing it were sound and good, while the crops of my neighbors were suffering from what are termed mouldy-nosed onions. I had several bushels from a small piece of ground, and was obliged to exchange with my neighbours for picklers. I presented Mr. Atkins, nurseryman, of Northampton, with twelve which weighed eleven pounds. I planted twenty-four of them the succeeding spring, for seed, which weighed nearly twenty-two pounds, and were shown to several friends before they were planted, who can testify the fact. I cannot say what quantity of seeds they produced, as I left my situation at that time.

A great deal has been said about growing large onions; but, according to my humble opinion, large onions are not the most desirable. From my experience (which, I confess, is not a lengthened one, as I am but a young gardener,) an onion from one to two inches diameter is the most profitable, of the readiest sale, and the best for gardeners and gentlemen. When a large onion goes into a gentleman's kitchen, it is cut, and a part only is used; the remainder loses its quality, and

ultimately bears company with the peelings to the dung heap. I advise John Mitchell, if he wishes for large onions, to try as I have suggested above. His soil will suit every purpose. He will find an advantage in time; run no risk in displacing the roots, which is apt to check vegetation; and he will not be so likely to get disease in the crops, as the trampling forms gutters in which he can, if dry weather occur, put water, and supply the roots more gradually with moisture; or, if a continuance of rain should happen, these gutters will carry off the superfluous water.

Chicheley Hall, Bucks.

[From Loudon's Magazine.]

POTATOES.

On the Uselessness of earthing up growing Crops of Potatoes. By Joseph Hayward, Esq. Author of "The Science of Horticulture," &c.

SIR,—I would offer a few hints that may aid the endeavors of those who advocate the benefitting of the condition of the poor: they may contribute to increase the objection which some have urged against exhausting the powers of labor. Mr. Knight's observations regarding the potato are valuable; but there is one laborious operation commonly resorted to in cultivating this vegetable, which, I think, has not been sufficiently considered; and which, I am convinced by more than ten years' experience, is superfluous. Observing that a farmer in managing a field of potatoes alongside one of mine, did not earth them up, but simply flat-hoed the surface of the soil to clear away the weeds, while I had mine earthed up with great care, I determined on noticing the difference on taking up the crop; and, to my astonishment, he had 14 tons per acre, while I had not more than half the quantity, and his potatoes were of a more marketable quality than mine; being generally of a good size, while mine were large and small. The result induced me to question the farmer; and he told me it was a practice he had followed for many years, as he thought the earthing up was worse than labor thrown away; that, a year or two before, he had obtained 19 tons per acre by the same management. This statement put me upon considering the principles upon which such a result was founded; and it appeared to me that, by drawing up the earth over the potato, in sloping ridges, it was deprived of its due supply of moisture by the rains; for, when they fell, the water was cast into the ditches. Further, in regard to the idea that, by thus earthing up, the number of tubers is increased, the effect is quite the reverse; for experience proves that a potato placed an inch only under the surface of the earth will produce a greater number of tubers than one planted at the depth of a foot. From reasoning thus, I determined to adopt the practice: however, such is the force of prejudice, that I have been able to make but few proselytes. A year or two since, I prevailed on a clergyman to try the practice on a strip of half an acre, running through a large field, treated in the common manner; and he told me that, on taking

up the crop, he did not find much difference in the gross quantity ; but that those which had not been earthed up were, more generally, of a good size ; not so many large and small as the other part of the field. I have no doubt, if potatoes are planted shallow, and placed wide enough apart to admit of the stems being laid down after the young potatoes are formed, and to have the earth between them thrown over five inches or six inches thick, so as to form a flat surface, that it would increase the crop. But this is a very different operation from that I object to.

PREMATURE SHRIVELING OF GRAPES.

On the premature shriveling of Grapes in Forcing-Houses. By Mr. J. D. Parkes, F. H. S. Nurseryman, Dartford.

SIR,—A variety of causes have been assigned for that disease in forced grapes which produces a shriveled appearance in the footstalks of the bunches, and also a want of size and color in the berries ; more especially in the Frontignans and Muscats. Some consider that it proceeds from the roots being too deep in the ground ; others think that it is occasioned by the temperature of the earth in which the root grows (when vines are planted outside the house) being so much lower than that of the atmosphere within ; and some attribute the disease to a want of air.

Having observed that early forced grapes are in general free from this disease, and that it never occurs to grapes grown in the open air ; and having found, in a house under my care, that some bunches immediately over a steam-pipe were free from it ; I have come to the conclusion that the cause is, stagnation of cold moist air ; and the remedy, the application of artificial heat, to such an extent (even in summer when the weather is cloudy,) as to admit, every warm day, of opening the windows sufficiently to occasion a free circulation of air.

A gardener, to whom I stated this as my opinion of the subject, has practised my plan every year since, with the most complete success.

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THE
HORTICULTURAL REGISTER

AND
GARDENER'S MAGAZINE.

FEBRUARY 1, 1835.

SALPIGLOSSIS, (*Variety, PICTA.*)

THE figure on the other side is an elegant and correct delineation of a flower raised by the writer, named Salpiglossis, from two Greek words signifying a trumpet and a tongue, in allusion to the tubular, yet tongue shaped extremity of the style. This plant was raised in Europe from the seeds sent to Edinburgh by Dr Gillies, and also by Mr Cruickshanks in 1826, from the Cordilleras range; several varieties were also recently introduced into Floricultural notice by the late Mr Barclay of Bury Hill, England, a name endeared to every lover of flowers, on account of the zeal he constantly manifested in the introduction of new and beautiful species, as well as for the liberality he exercised in dispersing them amongst enthusiasts.

The first knowledge of the flower, however, was one of the numerous and interesting results of the celebrated expedition, confided by the Spanish Government in 1777 to the conduct of MM. Ruiz and Pavon, for the purpose of botanical research into the vegetable productions of Chile and Peru, and their writings on these subjects are imperishable monuments of the zeal, intelligence, and industry with which they accomplished the task intrusted to them.

Their description is as follows: calyx or cup, five angled, and five cleft, flower funnel shaped, mouth plaited or folded, segments spreading, rudiments of the fifth stamen longest; (it belongs to *Didynamia angiosperma* of Linnæus, two long, two short stamens and

seed inclosed,) style tongued, as above mentioned. Stigma truncated, capsule, (seed pod,) two roomed with many seeds. To the variety, which they gathered at the foot of Mount Conception in Chile and in the district of Mochita, they affixed the name of *sinuata*, the leaves being sinuated, and toothed. It was generally about two feet high, and flowered there in the months of November and December; flowers dark blood red, striated or veined. The writer has found with others that seedlings produce almost endless varieties, as from seeds sent him from Europe of *straminea* and *atropurpurea* he raised all the first named, except perhaps *sinuata*, with others which have in England received the appellation of *hybrida* and *Barclayana*, some resembling *picta*, only with a bluish gray ground, and some perfect straw yellow, with a few incipient purple veins in the throat.

The *atropurpurea* is extremely beautiful, being altogether of a fine rich dark velvety puce color, the interior from the throat downwards shining as though covered with gum, the contrast of which with the velvety appearance of the upper part is very elegant. Professor Hooker appears to doubt that this latter is the same species as *straminea*, and indeed, although grown in the same situation and soil, the plant is far less robust, and has altogether a different appearance yet the whole six raised of *atropurpurea* agreed completely. *Straminea* is pure yellow, *Barclayana* and *hybrida*, of an iron brown and yellow veined with brown, and although always elegant in form are by no means so beautiful as *picta* and *atropurpurea*.

The plants were raised in a pot in the pen air, and afterwards transplanted into the garden, where they were killed by the early frost last September, before they had produced half their flowers: a green-house is their proper situation.

The best soil appeared to be loam and sand, with one quarter rotted horse manure, and a little leaf mould. Some planted for experiment in common garden soil did not thrive equally.

It appears an herbaceous perennial, although it may be here only biennial; owing to the above named early frost, I saved but a very small quantity of seed; part I have distributed among several gardeners in this vicinity; a little still remains for that purpose, and I take this opportunity of mentioning that whenever in possession of seeds or plants which appear worth cultivating, I shall feel a pleasure in distributing them indiscriminately amongst those who are interested in horticultural pursuits.

J. E. T.

A PARASITE OF THE HONEY BEE.

THOMAS G. FESSENDEN, Esq. :— The late Gen. Martin Field, of Fayetteville, Vermont, who was distinguished for his enlarged and liberal mind, and his love of science, sent to Professor Silliman the enclosed important communication, which was published in the American Journal of Science and Arts, Vol. xxv. No. 1, for October, 1833, pages 113-14.

The discovery announced in this communication is so interesting to the bee-keeper and the naturalist that it deserves to be generally known; and, as there are some points in it upon which additional information is required, you will do me a favor by giving to it, with the remarks here added, a place in both your Horticultural and Agricultural Journals.

For a few years past, many of those people in this vicinity, who have apiaries, have found that in the months of April, May and June, an unusual mortality has prevailed among their bees. This circumstance has led to a thorough investigation of the cause, by those who have felt a particular interest in the products of this valuable insect; and the result has proved, that this mortality has been produced entirely by a parasite.

More than two years since, one of my neighbors suggested to me his conjectures that there was a parasitic fly that was injurious to the honey bee; since which time we have fully ascertained the fact. I have a box, now before me, containing a great number of dead bees, in which may be found the parasites, in both the pupa and the perfect state. Usually the bees become sickly and unable to fly, when the parasites are in the larva state; but they sometimes live till the perfect insect emerges from the pupa. The larva is fixed at the inosculation of the dorsal segments of the abdomen of the bee, and is hardly discoverable by the eye unless the abdomen be dissected. The larva is white, nearly two lines in length, and very much resembles a small worm or maggot. The pupa is nearly the size of the larva, and of a reddish brown color. The perfect insect is a nondescript, and bears very little resemblance to the *Stylops* or *Xenos*, or any other insect that has been found to be a parasite of the bee or wasp. It is of the order Diptera of Linnæus, is little larger than the Hessian fly, but, in color and form, is very unlike that insect.

Mr Kirby, many years since, discovered that the insect, *Stylops*, was a parasite in the black-bronze bee, *Andrena nigro-ænea*, in England, and Professor Peck afterwards found that the *Xenos* was a parasite in wasps, in America; but I am not aware that a parasite of the honey bee has ever been discovered till of late, and in this vicinity.

In conclusion, I would most sincerely request those who have apiaries, to examine their hives during the spring and summer months, and if this parasite be discovered, to investigate the history of the in-

sect, and, if possible, to find a remedy for the injury it may produce.

MARTIN FIELD.

Fayetteville, Vt. May 15, 1833.

REMARKS.

The discovery of an intestine enemy in the bee, hitherto unknown and unsuspected, and its existence to such an extent as to cause an unusual mortality among these useful and industrious insects during their busiest season, were facts which on their first publication, strongly excited my curiosity; while the very brief description, which was given of the parasitic insect in its perfect or winged state, was not sufficient to enable me to make out the genus, or the rank which it held in a systematic arrangement. In answer to my inquiries on this subject and request for specimens, Mr R. M. Field, the son of the above named gentleman, informed me that his father had sent the parasitic insects, twenty or thirty in number, to a lady, in order to have drawings made from them, and that all of them were lost through carelessness. This accident may account for the very imperfect description of the fly which was drawn up by Gen. Field. During the last summer Mr Field obligingly sent to me some insects, which were given to him, by a person who, from some circumstances, was led to suppose that they were instrumental in producing the mortality among the bees. They proved, however, to be a kind of wild bee, (*andrena frugalis*,) at least half as large as the honey bee itself, and were furnished with *four* wings, in all which respects they differ essentially from the parasitic flies as described by Gen. Field.

In order to avoid any mistake in searching into the history of the little parasitic enemies of the honey bee, it will be well to keep in mind the following facts derived from the information given by Gen. Field.

These insects infest the bees during the months of April, May and June, and they are found in three different forms.

At first they are *maggots*, of a white color, nearly one fifth of an inch long, and live between the joints of the back of the bees.

Second. After a time they cease eating, their bodies shorten, and their skins become of a brownish color. They are now entirely quiet, and are in, what may be called, a state of transition (*pupa*) intermediate between maggots and flies.

Third. At length the insects burst the brownish skins which cover them, and come forth in the form of little *two-winged flies*, rather larger than the Hessian fly, probably about the size of a mus-

quito. They are then, like all other winged insects, in a state of maturity, and, consequently, in a condition to lay their eggs.

To complete the history of these little parasites, information is wanted upon a number of points, which, it is hoped, will receive the attention of persons who have the leisure and opportunity to make the necessary investigations.

If, during the proper season, a considerable number of sick, dying, and dead bees are procured and confined under tumblers, (those of them which are still alive being daily fed with a drop or two of sugar syrup or honey,) the little parasitic insects, with which they are infested, may be observed during their changes of form, and will probably, in due time, be found flying about beneath the tumblers.

Bee-keepers, and especially those who reside in that part of the country where these insects have been discovered, are most earnestly requested to endeavor to ascertain, 1st. When, how, and where do the flies lay their eggs; 2d. How long do their young remain in the maggot state; 3d. How long are they in what is called the *pupa* state, or state of transition. When, in addition to these facts, the means are furnished for drawing up a full, correct, scientific description of the insects in their last or winged state, their history will be nearly completed, and the way to successful experiment against their insidious attacks will be fairly opened.

The writer of these remarks at one time thought of offering a reward to any person who would apprehend a gang of these marauders, lodge them in the office of the New England Farmer in Boston, and furnish such evidence of their identity as would enable him to try them by the laws of science, and pronounce judgment upon them in their true characters. But, as he is not more interested in the subject than many other persons, he feels that he has discharged his duty in respectfully and urgently recommending the measure, and offering, whenever they are wanted for the purpose above named, the services of

Cambridge, Mass. January 9, 1835.

T. W. HARRIS.

FURTHER REMARKS ON CELERY.

OF celery there are few varieties worth cultivating; we prefer the white and red solid stalked upright, as being much sweeter than the large species.

For the last two or three years a series of most interesting experiments have been prosecuted in Europe, all of which tend to prove that most plants, after absorbing by their roots, the nourishing juices of the earth, select those which are necessary for their growth, then through other vessels reject and leave behind them the refuse, a kind of *exuvix*. This, although perfectly useless to this tribe of plants, may become good manure, or at least not be injurious to another tribe, which will then succeed and thrive on the same spot; or it may be that the first plant only takes up those juices suited to it, and leaves undisturbed those adapted to the second. Something of this kind has been for years proved by the practical horticulturist and agriculturist, they having discovered the utility and advantage of rotation crops, although the reasons have been hitherto concealed even from the man of science. Thus McIntosh in his *Practical Gardener*, states, and others have proved it also, that celery constitutes an excellent preparation for asparagus, onions, and cauliflowers; turnips or potatoes for cabbages and greens. The farmer also has his regular succession of seeds. It may also be that manure not only renews the exhausted juices, but also by some invisible and slow process, perhaps continued fermentation, converts these exuded remains of vegetables into gaseous forms, by which they are removed from the soil. In fact, the speculations on this subject are numerous, but it is probable they will be set at rest by the philosophical inquiries still pending. The last notice I have seen respecting this important question, is that a paper was read on the progress of researches made on the secretions from the roots of vegetables, by Professor Dunbar of Scotland, before the Section of Natural History, at the late great meeting in Edinburgh of the Association for the Advancement of Science. I am not aware that the contents of this paper have been made public, but I have taken steps to lay them before the readers of the *Register*, at as early a date as possible. J. E. T.

ON THE CULTIVATION OF FLORISTS' FLOWERS, AND RAISING NEW VARIETIES FROM SEED.

This may most truly be called the department of enthusiasm in Horticulture; those who have witnessed or shared in the anxiety of the few days preceding the prize shews of various seedling produc-

tious in England, can alone describe the excitement of the laborers in this vast and varied field for exertion: an excitement which while it surpasses many others in intensity, is generally unaccompanied by temptation to vice, and can scarcely be said ever to be carried to excess.

Were it an object with Temperance Societies to encourage allurements from the tavern, or from private indulgence, next to the endearing ties of connubial happiness, none offer stronger domestic attractions than the occupation of rearing florists' flowers, attempting to produce new and beautiful varieties from seed, or successfully cultivating those which have already obtained the meed of merit after the severe trials of floral judges.

If the American character be one of great industry and penetration, of rapid and admirable adaptation of energy to surrounding circumstances — and the success of the nation in commerce and in war will scarcely allow a doubt on this subject — why, now that the farmer is pouring into the lap of the country abundant wealth, and the latter has provided ample security for this parent of the ornamental arts, why I say, may not America shine with equal splendor in the refined pursuits of peace, in Painting and Sculpture, Architecture and Mechanics, in Natural History and last, though not least, in Agriculture and Horticulture? Let all assist a little in disseminating widely a taste for these fascinating studies, and this object which always elevates a nation in the scale of civilization and happiness will be speedily attained.

Why may we not hope to immortalize the fair of Massachusetts by giving their names to our flowers? or distinguish our pinks or carnations by the cognomen of a hero or a statesman? Why not have our *Camellia* — as well as New York her *Camellia Floyii*? It is certainly not for want of the loveliest in creation, the hero, the statesman or the spirited horticulturist, but rather for want of flowers whose beauty would not disgrace a conjunction with such names; let us not hope in vain, but remember that Rome was not built in a day. The remark may excite a smile, but it is nevertheless true, that those who take strong interest in this pursuit, are as anxious to have their names distinguished by being appended to a flower, as the hero his to a victory, or the statesman his to a newly discovered land; and after all, this path to fame, how innocent! to glory, how bloodless!

As a specimen of the ardor with which this branch of horticulture

is pursued, I present the reader with an extract from an early number of Loudon's *Gardener's Magazine*, a London periodical of great merit and extensive circulation.

“*Mr Dalmaine of Dalston's Auricula.*—From the mildness of the weather, the auricula bloom round London, though rather early, has been particularly fine this season; the plants in general have exhibited the most healthy appearance, and the luxuriant growth of the foliage has been such, as completely to cover the pots in many instances; the number of fine seedlings produced has been greater than usual; but the one which has surpassed all others, and attracted the most notice, is that of Mr Dalmaine of Dalston, who is very proud of it, and has offered to show it for one hundred guineas against any other auricula in England. The petals of this ‘eureka,’ this ‘venit tandem,’ are large and even, each consisting of six segments, well rounded; the tube and anthers of a bright buff, the pistil of the purest white, and the ground color of a dark shining violet, surrounded with bright green edging, lightly powdered; the foliage large and indented; and the pedicels, eye, and stem of the best proportions. The common inquiry has been, have you seen Mr Dalmaine's fine seedling? It is said to have been raised from Page's Duchess of Oldenburgh, crossed by Lee's Colonel Taylor, but far superior to either. Colonel Taylor, which has long been esteemed the leading flower, and the pet of the fancy, will now be supplanted by its own progeny, and the fine seedlings of Goldham, Page, Laurie, Hogg, Parker, and Smith (Mr Dalmaine's neighbor), will be thrown completely into the back ground.”

The writer of this was personally acquainted with Mr D'Almaine at the period mentioned, and saw the flower alluded to. Its beauties are by no means exaggerated, and the exultation of the owner may be well imagined.

After these prefatory remarks, for which if too *flowery*, the nature of the subject may plead some excuse, I intend to proceed in a series of papers, to give directions for impregnating, raising, and conducting the cultivation of florists' flowers, endeavoring to combine the experience of this climate with the information afforded by European growers, being persuaded that such combination offers the fairest chance of success.

I adopt the suggestion of a valued correspondent, that plants discussed should be described botanically, as well as by their common

English names, observing at the same time, that I will avoid technicalities as much as possible, but when obliged to use them, will give their meaning as clearly as I am able in popular language.

The CARNATION, (*Dianthus caryophyllus*), an herbaceous perennial has been known and cultivated for a long time, and shares with the Tulip the sovereignty of the florist's garden; it belongs to the order Caryophylleæ in the natural arrangement of plants, and to Decandria monogynia (ten stamened and one pistilled) of the Linnæan system. The character which prevails throughout the whole genus, that is, its generic character, consists in the calyx, or cup which contains the flower, being cylindrical or like a round hollow tube, which calyx is supported on the flower stem, by four rigid or stiff scales; by the petals (leaves of the flower) being five in number, each terminated by a long narrow piece called a claw, which the most casual observer must have remarked on pulling a pink to pieces. The capsule or seed pod, being one roomed or without divisions or cells; the stamens, those thread-like filaments rising in the centre of most flowers, supporting little knobs called anthers, being ten; the pistil or larger middle filament, single, as the Linnæan term describes.

To the great dismay of the botanist, the florist has transformed this and many other flowers into what the former calls monstrosities, but the latter, the delights of his garden; by successive strong stimulating soils, he has converted the stamens into beautiful petals, and increased their number, so as altogether to destroy the above botanical character, and make it a perfect double flower. The botanist, however, is not without his ample revenge; for after the florist has with great care and attention raised some hundred seedlings, the chances are that all but some twenty or thirty revert to their natural state of singleness, and of these twenty or thirty, he is fortunate if two or three are worthy a place on his stand.

The seed, on the impregnation, selection and gathering of which I will offer some general remarks in a future communication, may be sown as early as the season will permit, in an open piece of ground, the soil of which should be composed as nearly as possible, of one half stiff loam, rendered light by one quarter part of sand or sandy garden mould, and one quarter part of well rotted horse manure, and very lightly covered with earth; after coming up, the plants will require but little attention except weeding, and light watering in very dry weather, until they have about six leaves, say middle of July or beginning of August, when they should be transplanted

about fifteen to eighteen inches asunder, in a bed composed of the above soil, where they will grow considerably before winter sets in. I raised about one hundred seedlings, which lived through the winter, 1833-4, without protection; the selected plants are still in the same spot under snow, but it is questionable whether they will survive the severity of the present winter; the layers of some of the best I potted off and they are in the cellar, looking in perfect health. Should protection be required, I recommend pine boughs or large fern stems, as straw or anything that lies close on the surface of the earth is apt, by constant moist contact with the plant, to rot the stem. Some growers transplant both seedlings and layers in the Spring, but many others as well as myself have found that moving pinks or carnations at any other season than the Autumn is very apt to make the colors run and the stripes imperfect; however, I think renewing about an inch deep of the surface of the mould in Spring, when the plants are in pots, is very serviceable. The second year the seedlings will blossom, and as they progress the heart beats high with impatience. The growing stems should be supported by sticks, and the single flowers, which will soon be recognised by the buds being very slender, may be removed; the buds of the double will swell considerably. Much attention must now be paid to prevent them from bursting on one side, which completely disfigures the flower. Many tie bass from the Russian mat around the bud, others use slips of bladder, and some, sticking plaster. I have found the most efficient method is to cut a transverse slice of the English broad bean, fresh from the plant, (the Windsor bean does not grow large enough,) one eighth to one quarter inch thick, then pushing out the part of the seed bean there remains a ring formed of the shell; this should be slipped gently on the bud prior to its opening, so that it fits about two thirds of the way down; the sun dries and hardens it in a few days; it then embraces the bud with great tenacity, and effectually prevents the bursting, the ring itself turning black and becoming not thicker than writing paper. All the side buds should be eradicated, leaving only three or four flowers on each plant.

It is now necessary to describe according to the laws of floral criticism the criterion of a good flower. The stem should be strong, straight, and well shaped; the flower at least three inches in diameter, containing a number of large well formed petals, decreasing in size towards the centre; the guard leaves, or outer circle of petals, rising perpendicularly from the calyx about three eighths of an inch,

should then curl gracefully back a little, and form an elegant and natural support to the succeeding rows, which should regularly overlap at the intervals of the guard leaves (called imbricating, in botany) each rising a little, so as altogether to make the flower rather convex. The Bizarres are those which have two colors on their petals, and are generally more esteemed than the flakes which have only one; but I consider them, although more rich and gorgeous, not near so delicate and beautiful; a necessary qualification of all these is, to have the petals rose leaved, or without indentations on their edges; the stripes of color must be clear and well defined, not washy or running into the white ground, broadest at the edge and gradually narrowing as they approach the centre.

From the one hundred seedlings I raised, only one perfect flake could be selected; it had a single delicate rose colored stripe in the middle of each petal. Two were good bizarres, one not perfectly rose leaved, but large in size; several turned out entirely rose colored and were very beautiful, and two pure white were extremely delicate. Many were what are termed picotees, which have small lines of color instead of stripes, and the edges of the petals are indented or fringed; when these are on a bright yellow ground they are esteemed. A picotee, of a blue leaden color, has been lately introduced, but although singular, does not please my fancy. Another variety of the rose-leaved Carnation is of a pure unmixed transparent bright sulphur yellow color, darker towards the eye; it is rare, exceedingly beautiful, and more tender than the others, requiring the protection of a cool green-house during the severity of winter.

Still, after a flower is thus obtained from seed, of superior color and size, one important operation yet remains before it can be placed on the stand to vie with its rival competitors — it must be carefully dressed — to perform which properly, a pair of fine brass pincers are requisite, such as are used by the watch-maker, or in the delicate manipulations of the chemist, and the points of these should be covered with thin slices of cork to prevent injury to the flower. A piece of white card must then be cut round, about two and a half or three inches diameter, with a hole in the centre, of size to fit the calyx rather tight, and a slit made from this hole to the outside circumference, so that by bending up it may admit the stem and slip just under the guard leaves, which must then be arranged regularly on the card, hardly in contact with it, touching the leaves as gently as possible, and rather with the pincers than the finger; then proceed

to lay the second row of petals, imbricating as before described, and so on to the centre. When there is a petal defective in its color or shape, or which after all exertions cannot be made to lie in its proper position, seize it firmly with the pincers as near the claw as possible, and extract it neatly, the others will fall better into their places; observe, however, not to draw out too many, as unless pretty full of petals it will not be considered a good flower. This operation of dressing a flower can only be well learned by experience; many spend two or three hours over a single flower; still it is a pleasant task—it is like giving the last touch and finish to our picture.

The botanist curls the lip of scorn at this farther attempt to improve by art the beauties of nature, but surely the florist by rendering the flower double has already removed it from his dominion, and if this latter has made a monster of *Dianthus caryophyllus*, permit him at all events to make this monster as beautiful as he can. Those who have not seen a flower before and after it has been carefully dressed, can hardly imagine the beauty this operation adds to its appearance.

With respect to moisture, the Carnation will bear considerable wet in the Spring while growing, but the autumnal rains, if very frequent, are apt to rot the stems near the root; if in pots, as the best ought to be, they may either be sheltered by boards or turned on their sides. If watered once in eight days with a weak solution of saltpetre, the stems and foliage are increased to a great size. I tried this with many of mine, but although astonished at their luxuriance, was disappointed at not finding it increase the flower in the same proportion. Some growers have what they term a secret of mixing a little bullock's blood with their compost; it appears to me probable that it may be a strong stimulant as a manure, but I have not tried it.

Having extended this communication longer than the interest of the reader can probably be kept up, I will defer the consideration of the insects which attack the Carnation, also the methods of propagation by layers and pipings, until my next paper, should this be deemed sufficiently amusing to make another desirable.

Yours, truly,

NESCIO.

ON THE CULTURE OF ASPARAGUS.

THERE are several varieties of this valuable plant, and the common garden asparagus (*asparagus officinalis*) is cultivated extensively for the table. It grows best on a soil light and rich. If the use of the plant can be postponed for a year or two, it will be found most advantageous to raise it from the seed.

The following mode of culture has been successfully practised by experienced gardeners. Dig a trench two and a half feet wide and one foot deep. The bottom of this should be covered with good manure, well rotted, four inches thick. Upon that place a layer of loam four or five inches thick, upon which the roots are set six inches apart. Then cover the roots with good earth, and the succeeding fall spread horse manure over the bed. The following Spring uncover the surface with an iron rake, and take off the manure and dig it with a dung fork. We know of an asparagus bed, which has been forty years established, and is as vigorous and productive now as it was five years after it was commenced.

Some gardeners affirm that asparagus should always be propagated by seeds. And that for the purpose of obtaining the best seeds, the most promising buds should be marked and tied to a stick, &c. But more of this hereafter. If sown to transplant, (according to Abercrombie,) one quart of seed will be requisite for a bed four feet and a half wide, and six feet long. If plants a year old are wanted for a plantation, then for a bed four feet and a half wide by thirty feet in length, to contain four rows of plants, nine inches distant in the row, one hundred and sixty plants will be requisite. The seed should be sown in April or May, in the same manner as onions, eighteen inches apart.

The following method of planting is recommended by Abercrombie: "Stretch a line length-wise the bed, nine inches from the edge, and with a spade cut out a small trench about six inches deep, perpendicular, next to the line, turning the earth displaced along by the other side of the trench; and, having the plants ready, set a row along the trench, nine inches apart, with the crown of the roots two inches below the surface, drawing some earth, just to fix them as placed. Having planted one row, directly cover them fully with the earth of the trench, raking it back regularly an equal depth over the crown of the plants. Proceed then to open another trench a foot from the first: plant it as above, and in the same manner plant four

rows in each bed. Then lightly raking the bed, length-wise, draw off any stones and hard clods, and dress the surface neat and even. Then let the edge be lined out in exact order, allowing three feet for each alley. But, sometimes, in planting large compartments of asparagus, a first trench having been made and the roots placed as above, then a second trench is opened; of which the earth is turned into the first over the plants. So proceed in planting the whole; making allowance between every four rows for an alley of three feet, more or less. It is of very great importance to take up the roots carefully and expose them to the air as little as possible before planting.

If you would raise asparagus directly from seed, without transplanting, you may sow two or three seeds in the places designated above for setting the plants, and cover them with an inch of good soil. When the plants are up they should be thinned to one in a place.

In a *Treatise on Gardening*, by J. Armstrong of Duchess, N. Y., it is directed to plant roots of *three* years old, instead of those of one or two years old, according to the usual practice. The author observes that "roots of three years will not only give fruit sooner than those of one or two years, but their fibres being harder, and roots more numerous, are better able to sustain the violence inseparable from transplantation, and the other accidents, (such as heating and chafing,) which often accompany it, particularly if the roots be brought from a distance.

Asparagus beds should be completely loosened to a moderate depth every Spring, as soon as the frost is out of the ground, with a proper fork, having three short tines, six to eight or nine inches long. But care must be taken not to go too deep, so as to wound the crown of the roots. The beds being loosened in every part to a moderate depth, should be raked over before the buds begin to advance. In Autumn, after the tops are turned white by frost, they should be cleared off, and a layer of dung, or rich soil an inch thick, laid over the bed. This should be done yearly, and the bed kept clean of weeds. If the bed should get too high by this management, the surface may be taken off with a spade early in the Spring to the depth of two inches, before the young shoots are in the way. But when this is done, a thin dressing of rotten dung or compost should be laid on. This plant, according to *Deane's New England Farmer*, grows well in ground that is shaded. The sprouts will be very large and tender, but they will not be so early. It is not amiss to have one bed in a shady place, to supply the table, after the season is over for cutting the first.

CUTTING AND GATHERING. In new plantations be careful not to begin cutting till the stools have become mature in the third or fourth year. Likewise observe, both in old and new beds, to gather all the produce in a regular successive order, within the proper limits of the season. As the rising shoots project two, three, four or five inches at most, above the top of the ground, while the top bud remains close and plump, they are in the best condition for gathering. Cut them off, within the ground, with a sharp pointed knife, or small saw, nine inches long; thrusting the knife or saw down straight, close to each stool separately, cut it off slantingly, about three inches below the surface, with care not to injure the young buds, advancing below. Observe in a new plantation, in the first year's gathering, if the shoots come up of irregular sizes, to cut only some of the larger for a fortnight, or three or four weeks, and then permit the whole to run; but otherwise, when in strong production, gather all as they come, two or three times a week, or as required by the season till the 21st of June; then at furthest terminate the cutting, and permit the after shoots to run up in the stalk till October. If from a particular inducement you cut later than the 21st of June, be careful to leave two or more shoots to each stool, in order to draw nourishment to it: for the stools left without growing shoots will perish; and by negligence in this respect, many unproductive spots are left in beds.

TO SAVE ASPARAGUS SEED. "Select some of the finest and earliest heads as they make their appearance in the Spring; tie them to stakes during the Summer, taking care not to drive the stake through the crown of the plants. In Autumn, when the berries are ripe, wash out the seeds, if for the market, or to be sent to a distance; but for home sowing, keep them in the berry till the time of sowing, the pulp being a great nourishment to the seed, which ought to be kept in a dry place through the winter." — *Hort. Trans.*

It is recommended never to cut down the stalks of asparagus in Autumn till the sap is gone out, and the stalks are dry and withered, because the vital juices return to the roots, and strengthen the plants for the next season.

BLANCHING ASPARAGUS. According to some writers, in Spain, Vienna, and some other parts of Europe, it is customary, in order "to give asparagus shoots growing in the open air as much length and tenderness as possible, there is inverted over each stem destined to be gathered, as soon as it shoots above ground, a wooden tube or pipe

eighteen inches high, and one inch in diameter." Dr Forbes on the same subject says, "in order to preserve the whiteness of the asparagus shoots they should be covered with a wooden or earthen pipe of twelve or fifteen inches in height, with a hole in the top."—*Hort. Trans.*

"We have no doubt but that asparagus is nearly as much the better for being bleached as sea-kale, which is said to be an asparaginous plant. The sea-kale, according to Mr Lowell, 'should be covered with pots or boxes in March, so as to exclude the light and to blanch it or make it white. If not blanched it is not so beautiful to the eye, or so tender and so delicate to the taste as if blanched.'"

Asparagus is found growing naturally on the borders of salt marshes, from which it was inferred that salt would be a good manure for that plant. Dr Deane asserted that, "To a bed fifty feet by six, a bushel of salt may be safely applied before the plants start in the spring."

A writer for the *Genesee Farmer* recommends horn shavings and chips, to be dug into the ground, as excellent manure for asparagus. The effect of this manure was scarcely perceptible till about three years after its application, when it enabled the cultivator "to cut daily large quantities of the finest asparagus, *half an inch in diameter*. After the shavings began to decompose their effect was enormous."

It has been recommended, if the season be dry, to water asparagus beds with the drainings of a dung-hill, or leached manure, once or twice a week, the beds being somewhat hollow towards the centre, the better to retain the water or rain.

In a valuable paper, written by the Hon. John Welles, a method is described as the result of experience, by which the process of cultivating asparagus is greatly simplified. The following is an extract from the paper referred to.

"One of my predecessors, in about 1765, from a wish for the convenience of a good asparagus bed, as well as a strong impression of the difficulties of having a good one, set about it in earnest. By all report there was trenching or deep digging, paving with bricks at the bottom, and a laying of manure low down, and much more dug into the soil. This certainly became a good bed, and was always so considered.

"In about twentyfive years, or 1790, its decay was very observable, and it soon dwindled away to little or nothing.

“ For some years the privation was submitted to. But in about 1800, a new bed was made with the same labor and expense, except the paving. This too proved a good bed. It lasted about the same time with the preceding, and some two or three years since was allowed to grow to grass.

“ About twelve years ago while the last mentioned bed was in full bearing I was led to think that much of the trouble might be avoided in the process and preparation for its culture. A piece of ground was taken on the same farm, of a deep, rich soil. After a common corn crop was taken off, the land was ploughed and manured in the usual course. Holes were then dug twelve or fourteen inches in depth, and about the same distance apart, and two or three shovels of compost manure were mixed with a part of the earth. The roots of a year's growth were then inserted at about six inches in depth. This bed has flourished and has been thought as productive as any whatever. At the same time with a view of a more full and fair course of experiments, I took a piece of land in another place of opposite character, being a thin light soil, and adopted a like course, and the result was equally favorable. The only difference to be noted was that the latter was more early in coming forward from the nature of the soil.

“ However rare it may be that there is any over cultivation or preparation of the soil for any vegetable production, it would seem here to be the case. * * *

“ If the bed from frequent weeding becomes low, it may be raised with dock mud to advantage. This produces no weeds, while the saline particles are favorable to its growth.”

We think this last suggestion of Mr Welles will be very useful to cultivators, who reside near the sea-shore, and indeed all his observations are important.

Asparagus may be forced in hot beds by using three years old plants, which alone are suitable to that purpose. In this, set the plants at the distance of two inches. Mr Armstrong observes that the mode of taking plants from hot beds “ differs from that used for plants raised in the natural way. If you employ a knife you cannot fail to destroy many young plants, (on account of the closeness with which they stand to each other,) but the mode in which you do least mischief, is, to thrust your finger down along side of the bud, and break it off at the root.”

T. G. F.

ON COLLECTING SPECIMENS OF NATURAL HISTORY.

IN the active pursuit of commerce there is hardly a harbor in the world which has not been visited by American vessels; indeed we know some single mercantile establishments whose ships have sailed in every sea, and scarcely left a port unexplored. These trading voyages, as they are often arranged, are generally placed under the superintendence of a captain or supercargo of tried and known intelligence; now we cannot be far wrong in believing that almost every man of intelligence has a love and a taste for objects of natural history, which, although it may lie dormant at present, is easily awakened by attention to them being aroused.

It is for this purpose that we propose to give a series of papers, showing by a few simple instructions, easy in practice, how little labor and how much pleasure there is in gathering and bringing home specimens of dried plants, seeds, bulbs, and even plants themselves. And although this is professedly a Horticultural Magazine, few of our readers will, we hope, object to our devoting a small space towards continuing the chain of natural history, by giving directions for collecting shells, particularly fossil shells, minerals, and insects. To these gentlemen it needs but few words to show, that a large portion of our stock on this subject consists of small mites thrown promiscuously into the treasury of knowledge by individual travellers, which are arranged by the industrious naturalist, in his study, and re-issued by him to the world like a current coin, from that finest of all mints, the public press; generally bearing, in addition to the stamp of its scientific genus and class, the name of its first contributor. Equally true is the remark, that preëminence in knowledge elevates a nation more certainly than victories gained; and we are sure that no American will consider it unworthy his efforts to add to the renown of his country in this respect, particularly when experience will have taught him that it is combined with pleasure to himself.

We may add, that the Natural History Society of Boston will receive with pleasure, and arrange properly, for public inspection, all such specimens, either as a gift with the name of the donor; or if valuable, in deposit, the property remaining vested in the depositor. We do not mean to be exclusive as to Boston, for we believe, although without the means of absolutely knowing, that wherever similar establishments exist in the United States, they would be happy to do

the same in some shape or other. For ourselves, we shall feel it an honor as well as an agreeable duty to publish all written notices on these subjects, and will, if particularly requested, prepare any for the public eye; although we think that communications of this description being often written in distant climes, under feelings generated by the objects around, are most frequently better given in the original language of the writer.

To our Southern and far Western friends, for we hope our Register will circulate so far, we say, that nothing will give us greater pleasure than to receive from them seeds, bulbs, plants, and dried specimens of the flowers which predominate in their fields, swamps, and woods. We will endeavor to acclimate them here, by distributing to societies and individuals who are zealous in the cause of horticulture, giving notice of the same in our Register; and if duplicates of dried specimens and bulbs are received some will be transmitted to Europe, and increase the admiration and taste which already prevails there to a considerable extent for the Flora of America.

One observation more seems appropriate, which is, that although specimens of all plants will be gladly received, yet those which are showy and brilliant in color, or useful as esculents will be most desirable, as forming more interesting or ornamental groups in the garden if acclimated.

All communications, free of expense, may be addressed to Mr GEORGE C. BARRETT, Agricultural Seed Warehouse, Boston, Mass.

In southern climates and tropical regions the hour for enjoying exercise is about sunrise, at which time most flowers are about to expand; they may be gathered then, and if not in possession of a tin case, which is always used by botanists in their excursions, they may be stuck in the lining of the hat, or carried by hand. On arrival at home the best way is to place them in a tumbler or vase of water, to refresh them, and that the dew may evaporate from their surfaces, which will be in about an hour; this is rather important to prevent spots of mould. Lay a sheet of paper on a table, first dry or cut off the part of the stem which has been immersed in the water, then place the flower on it and take another sheet, lay it gradually on the first, beginning at the top of the specimen, advancing the right hand with gentle pressure on it, while with the left the paper is held up to see that the flower and leaves are laid in their proper position, and not folded one over the other, so that neither can be exhibited. Having at length got the whole specimen under your right hand, endea-

vor to slide a book, piece of wood or anything of weight, on the top; withdrawing the right hand gradually as it was advanced. Then proceed to another, and when all are completed endeavor to lay them one on the other, with as little motion as possible, placing a weight on the whole pile. The rule for weight appears to be, that it should be enough to keep the specimen from shrivelling, and yet not so heavy as to squeeze the integuments of the flower so as to destroy its natural appearance. This is the neatest way of performing the operation, but many simply place the plant between the leaves of a book, or sheets of paper, putting one on another with a weight on the top, which is quite sufficient for those who are not very particular. They should be looked at every two or three days until quite dry, always replacing the weight; they would otherwise quickly shrivel up; any coarse absorbent paper will answer the purpose. The writer of this has dried many hundred beautifully between old newspapers. A bag of fine sand is considered an excellent weight, as it sinks down into all inequalities, and presses every part. This, however, is not always at our command, and a piece of flat board, with a weight on it will do pretty well. When dried completely they may be placed between two pieces of board and strapped together, or bound with a cord and placed in the trunk.

Small plants should be taken, root, stem and flower; of large ones the flower, bud, seed vessel and seed, branch and leaves; if very long plants may be bent in the form of a V, or cut in half; if possible exhibit the pistils and stamens when they rise conspicuously, in their natural state, observing that the quicker all plants are dried the better they preserve.

Large succulent plants, such as cactus, stapelia, aloe, and others, with thick, fleshy, juicy leaves, are difficult to preserve, although some of their flowers will with care. The writer has between twenty and thirty varieties of stapelia, which have been ten years in his herbarium; most of them give an excellent idea of the flower; but with the leaves he found it impossible to succeed. Small succulent plants, as many of the sedum tribe, will dry, but as they do not readily lose their vegetative power, they often grow in the herbarium; some even push small roots into the paper. These may be killed by momentary immersion in hot water; they will then dry easily. Some, as the pine apple tribe, will do better by being pressed a short time with a hot smoothing iron.

The class of plants called ferns are exceedingly interesting to bot-

anists, dry easily, retain their viridity and are not liable to attacks from insects; they may be known by the under side or under margins of the leaves being chequered or nearly covered by brown powdery spots or lines, or by a brown powdery spike rising from the centre; there are no flowers; this powder is the seed, which bursts directly from the veins under the skin; the foliage is generally very beautiful, and the little vessels which contain the seed are most curiously constructed for the purpose of ejecting it when ripe. They may be distinctly seen with a moderate magnifying glass.

A little experience, however, will teach more than volumes of instruction. All I wish to establish is, that there is neither secret nor difficulty in it; if simply laid carefully in a book, plants will dry tolerably well, particularly if changed two or three times during the operation.

Those who wish to form a permanent herbarium, would do well to appropriate a sheet of paper to one or two specimens, according to their size, to which they may be quickly and conveniently fastened in the following manner: Cover a sheet of strong writing paper with a thin layer of best glue, laid on with a brush while liquid; when perfectly dry, cut it into thin strips, from the breadth of a stout thread to one quarter of an inch, according as you are particular, or as the size of the specimen may require. Two or three strips, very slightly moistened and placed across each plant, will instantly adhere closely to the paper, and keep it in any desired position. If the plant is required to be removed for inspection, it may readily be effected by passing a penknife under the strips of paper, cutting them carefully, after which they may be replaced by others.

Dried plants are sometimes subject to the attacks of small insects; the most effectual remedy for this is to pass over the specimens a camel's hair brush dipped in a solution of corrosive sublimate and spirits of wine; as this is, however, of a poisonous character, care should be taken in using it. It is quite material to write conspicuously on the sheets to which the specimens are fastened, the place and date of gathering; also the soil, whether sandy, chalky, stiff clay, swampy; whether under the woody shade or in open places, in which the plant grew; likewise, the family and order in the natural arrangement, and the class and order in the Linnæan system. Thus an herbarium becomes an interesting and intelligent friend during the winter months, vividly recalling to the imagination the pleasure enjoyed during botanical researches of bygone years, and retracing

on the mind the delightful intercourse with the companions of our excursions, who may since be scattered in different parts of the globe, and who, for aught we know, may be enjoying the same reminiscence. It may be truly said, that botanical excursions, from the excitement in searching for and finding plants, are very seldom tedious; particularly if those who accompany us are at all lively and intelligent. The writer considers some of the happiest moments of his life passed in this occupation; and they recur with much force whenever the herbarium is consulted. For young ladies studying Botany, it is a delicate and interesting amusement, almost indispensable if any real knowledge of plants is desirable, and particularly so, as many flowers if carefully dried will retain their brilliant colors for years; such are the Pelargoniums (commonly called Geraniums), Gentians, *Cenothera*, and many others.

Seeds should always be gathered when met with ripe, and if possible, wrapped in thin paper and corked tight in bottles. Bulbous plants may generally be known by their leaves, being mostly flat strap shaped, without stems, rising directly from the earth, and the flower stalk from the centre like the hyacinth, or from one side like the tulip; there are some exceptions to these appearances, although not of very frequent occurrence.

The most advantageous time for taking these out of the earth is when the flower stem is withered, and the leaves are turning brown; nevertheless, bulbs may generally be removed at any time without danger of being killed, although it may take a season or two of care and attention afterwards to bring them into a flowering state. I will add that bulbous flowers, particularly those with long and large broad leaves, are generally very showy, and extremely desired by cultivators who possess stoves or green-houses.

J. E. T.

[For the Horticultural Register.]

AMERICAN PLANTS.

MESSRS EDITORS — I continue my remarks on American plants. Many of our indigenous plants, that are cultivated with attention in foreign countries, are overlooked in our own, for no other reason than that they are so common. There is none more so than *Kalmia angustifolia*, a low shrub that covers large tracts of cold, moist land, in

almost every section of the country. It is a great nuisance to the farmer, who looks very suspiciously upon it, as it has the reputation of being poisonous to sheep, and other animals, who for the sake of variety, or want of other food, sometimes feed upon it. It is known in New England by the names, sheep-poison, lamb-kill, low and narrow leaved laurel, &c. It is from one to two feet high. Leaves on short petioles, scattered, or in threes, lanceolate, obtuse, smooth, evergreen, sometimes rusty beneath. Flowers in June and July, mostly red or deep pink, and in one instance I saw a bush with pure white flowers. They resemble in shape those of *Kalmia latifolia*, but much smaller, disposed in lateral corymbs proceeding from the axil of the leaves, and forming a sort of whorl round the stem.

There is a variety in swamps with broader leaves and more vigorous growth.

Cobbett says, "the little dwarf brush staff that infests the plains of Long Island, is, under a fine Latin name, a choice green-house plant in England, selling for a dollar when no bigger than a handful of thyme." How large a handful he does not say. "When in bloom," he remarks, "it resembles a large bunch of Sweet-william. It is so pretty it is worth having in a green-house, where it would probably blow in April in Long Island." He is not very discriminating, for I do not think it has much resemblance to Sweet-william; but I agree with him that it is very pretty.

When a child I was not permitted to have any of the prohibited article in my bouquet of wild flowers; more than once, when tempted by its beauty to disobey and add a sprig, I have had to forfeit the whole bunch, with the order to wash my hands and gather no more; while at the same time I was encouraged to cultivate the deadly *Aconite*, and other plants of not much less dangerous properties.

Those who are collecting our native plants to decorate their gardens will not overlook this, however it may be despised, as it is easily cultivated, and obtained without any expense.

Kalmia glauca is a species more rare than those I have described, and not often met with. Its location is such that few persons would ever see it in its native soil, unless prompted by curiosity to penetrate the dark, mossy, boggy swamps which it inhabits. The only place I have observed it, is in a swamp almost impenetrable, in the northern part of this town.

It is a small shrub. The young branches are two edged. Leaves opposite, subsessile, lanceolate, smooth, revolute at the margin,

glaucous beneath, deep green above, evergreen. The flowers are purple, in shape like those of the other species, in terminal corymbs; peduncles filiform, each issuing from a pair of concave, obtuse, smooth bractes. I imagine this to be the most difficult of all the species to cultivate. I have a plant of it in my garden and can only say it lives. It should have a moist peaty soil, a shady situation, with the surface of the ground covered with meadow moss, and it may flourish.

There is another plant common in many places, found in great luxuriance and plenty in the same swamp with *Kalmia glauca*, which, though it has no affinity with it, yet as they are associated in my mind together from the fact of seeing them side by side, I shall mention. I consider it one of the most curious plants we have. It is, *Saracenia purpurea*, common by the name of Side-saddle flower, from the resemblance of the stigma to a woman's pillion; also, "Our Forefathers' Cup," from the singular form of the leaves, which are tubular and hold water, and when full grown, contain from a wine glass to a gill, and are rarely empty. Report says our worthy ancestors made use of them to drink from. No matter how true or false, they certainly look as if they might be used to advantage, having the appearance of little pitchers, but not very inviting from their unpleasant odor, and from the fact that they are generally found containing many dead insects.

The cup is hairy within, the hairs pointing downwards; in these the insects get entangled and perish.

The generic name was given by Tournefort, in honor of Dr Sarrazin, a French physician of rank, residing in Quebec, who sent this genus to him from Panama. It is an evergreen, herbaceous perennial. "Leaves decumbent, all radical, and formed by a large hollow tube, swelling in the middle, curved and diminished downward, till it ends in a stem, contracted at the mouth, furnished with a large, spreading, heart-shaped appendage at the top, and a broad, wavy wing extending the whole length on the inside. The scape is large, smooth and cylindrical, supporting a large nodding flower. Exterior calyx of three small leaves; interior of five ovate, obtuse leaves, shining, and of a brownish purple. Petals five, panduriform, obtuse, repeatedly curved inward and outward, and finally inflected over the stigma, brownish purple above, green below, deciduous. Stamens numerous, with short filaments, and large bilocular, oblong, peltate, yellow anthers. Style short, cylindrical, supporting the broad, spreading stigma, di-

vided at its margin into five bifid lobes, alternating with the petal. Properly speaking this curious plant has five stigmas, which are projecting points with moist tops situated under the notches of the lobes. Flowers in June."—*Bigelow*. It belongs to the class Polyandria; order, Monogynia of Linnæus, and is placed doubtfully in the natural order of Papaveracæ. As this is always found in wet, mossy grounds, it will be found rather difficult to manage in a common garden. I have found that a root taken up with a ball of earth, and placed in a moderately moist place, exposed to the sun, without much care, survived a number of years, and still lives, but is not in a very flourishing state. With a peat soil, the surface covered with moss, and occasional supplies of water, I have no doubt but it would succeed very well, if not in a very dry situation.

On the margin of swamps and in wet meadows may be found the *Rhodora canadensis*, a beautiful shrub, frequently in large masses of many yards in circumference, and when in bloom, in May, presents a magnificent appearance.

The flowers appear on the extremity of the branches before the leaves are perfectly expanded, are of a fine purple, in shape somewhat resembling the honeysuckle, whence its common name, false honeysuckle. Class, Decandria; order Monogynia; natural order, Rhododendræ.

I have been successful with this fine shrub, by taking large masses of it from the meadows with the earth attached to the roots, and planting in a moist soil; also, by taking the suckers, which it throws up as freely as the lilac. It will flourish without much difficulty.

In my next communication I shall describe other plants of this beautiful natural family, as the *Azalea*, *Rhododendron*, *Epigea*, &c.

Lancaster Hort. Gardens.

X.

[For the Horticultural Register.]

HORTICULTURAL NOTES.

[We are under great obligation to the gentleman who has furnished us with the "Notes" which follow, and earnestly request a continuance of his valuable communications.]

The acclimation of the Morus multicaulis or Chinese Mulberry seems to be a subject that demands the attention of the Horticulturist.

From the accumulated evidence of planters in the Eastern States and the Middle States north of Long Island Sound, it appears that except upon very dry subsoils, it is liable to severe injury from the cold of our winters. In almost every instance in these limits the ends of the young branches which produce the finest and most succulent leaves are killed, and in many nearly the whole of the current year's wood is destroyed. As silk growers agree in the superiority of this species of *Morus* it is highly desirable that it should become more thoroughly naturalized among us. There are but two successful methods by which plants may be acclimated in general practice among cultivators:—continued reproduction from seed born in the new situation, and the disposition of the plants with regard to aspect. The latter is generally successful only in the case of herbaceous plants and the smaller shrubs, so that it is to the former method we are to look in the case of a tree of so vigorous a growth as the Chinese Mulberry. When we reflect that many of the most delicious fruits now abounding in our gardens were originally natives of the warmer temperatures of the Asiatic continent—the Peach and Apricot of Persia, and the Cherry of Pontus, the climate of which have no season approaching in similitude our frigid winters,—we may reasonably hope for like success in a plant derived from China, so many of the vegetable productions of which withstand our season perfectly without protection. The fruits just mentioned have been reproduced to an almost endless extent from the *seed*, and the same gifts of nature which were once considered garden luxuries in Italy now flourish around the door of almost every farmer as far north as the Canadas. It is highly probable that our want of success in the field culture of the vine (which by comparative temperature should succeed perfectly anywhere in the Middle or Eastern States) may be solved by considering that in this country it has been propagated only by extension of the old plant; i. e. by cuttings and layers of the branches. The numberless varieties of the wine grape in Europe, many of which seem to be alone adapted to the vineyard to which they give celebrity, have been undoubtedly produced from *seed*. The *Morus multicaulis* bears seed at an early age, and in considerable quantity. It is highly probable therefore that the proper method to be taken to enable it to withstand our climate is to *sow the seed ripened in this country successive for several generations of plants*. In other words, the seeds of the seedling should be sown for a number of years and each crop it is reasonable to suppose will become more hardy than the former.

Almost every one derives gratification from the delightful fragrance of flowers. In fact many persons who are not admirers of beautiful colors and fine forms have a decided *penchant* for grateful smells. Such individuals will invest the grounds of the country villa or the garden of the cottage with an endless source of pleasure to themselves if they will take pains to assemble around them in their home situations the most fragrant flowering plants and shrubs. The porch of the cottage and the pillars of the piazza should be enwreathed and clustered round with the fragrant and beautiful honeysuckles. *Lonicera perelymenum*, the early fragrant, makes its appearance early in the spring and the monthly fragrant variety of the same plant continues to produce its delicious flowers during the whole season. A more recently introduced variety, *L. flexuosa*, the Chinese twining honeysuckle, also bears very fragrant and beautiful striped flowers, and retains most of its deep green foliage during the dreary months of winter. The taller growing varieties of the China rose — the Champney's and Noisette clusters, may also from their climbing habits and luxuriant growth be easily trained in any such situation, and a slight protection will suffice to shelter them from the severity of our winters. The quantity of beautiful and fragrant flowers which they will produce in a rich soil from June to November is astonishing. We have counted upwards of five hundred roses in bloom and in bud upon a single plant at one time.

But the most charming climbing plant with which we are acquainted is the *Clematis flammula*, or European Sweet Scented Virgin's Bower. It will in good situations reach the height of six or eight feet, and when in full blow in the month of August it literally fills the air with its delicious perfume. Among the first hardy plants which delight us by their pleasant odor in the spring are the Meze-reum (*Daphne mezereum*) covered while yet leafless with delicate pink blossoms, and the fragrant European white and blue violets, which are the violets of the poets; for though our woods abound in wild species, none of them unfortunately have any fragrance. It is the former that is so beautifully spoken of by Shakspeare, in the passage,

——— "The sweet south
That breathes upon a bank of violets,
Stealing and giving odor."

The Lily of the Valley and the Hyacinth are well known plants, deservedly favorites for their purity and fragrance. The White Lily (*L.*

candidum) still more popular, and the poet's *Narcissus*, the *Monarda*, with its mint-like smell, and the Rose-scented Chinese *Pæonia* (*P. fragrans*), together with the above, make a charming *bouquet* of sweets which it should be in the power of every one to gather who has a rood of ground to cultivate. Nor should the Evening Primrose (*Ænothera*) though common, which disperses its balmy fragrance only in the evening, and the inconspicuous yet delicious *Mignonette*, be forgotten. The sweet scented shrub (*Calycanthus florida*) similar in odor to the Pine-apple — the *Magnolia glauca*, the spicy smelling Clethra, the Syringa, and the fragrant yellow blossoming Currant of Missouri (*Ribes aurcum*), all native shrubs of our own continent, have been long appreciated abroad for their elegant and odoriferous flowers. None of the above plants are rare; on the contrary they may all be easily procured, and the increase and dissemination of them around our houses of every description would tend to make the city residence more agreeable and the air of the country still more refreshing and delightful.

There are many fine fruits neglected or but little cultivated in this country, which are highly deserving of the notice of the horticulturist. The English Walnut, or as we term it, Madeira nut (*Juglans regia*), the fruit of which is annually imported and offered for sale in the shops, will thrive and bear abundant crops when in a genial situation south of 43° of latitude.* The fine appearance of the tree, added to its claims as an excellent fruit when ripe for the table, and in a green state for pickling, ought to recommend it universally to a place in the orchard or ornamental plantation. The *Spanish Chestnut*, with fruit four times the size of our wild species, and the new varieties of *Filbert*, bearing abundant crops of delicious fruit, only need to be better known to be sought after with avidity, as they (particularly the latter) thrive in our climate with very trifling care. The Black European Mulberry (*Morus nigra*) also grows well in a warm situation, and bears fruit of double the size and finer in flavor than the American.

In many situations in the Eastern States the common Cranberry is produced in such profusion as to supply the wants of all the neighboring inhabitants; but in the other States and districts, less abounding with marshy and swampy land, its berries, so much esteemed for

* A tree growing here which bears excellent fruit, now twenty years old, measures three feet in circumference at two feet from the ground.

tarts, &c. are so rarely found growing wild as to be an article of luxury. In such situations it may be gratifying to some cultivators to know that they may be raised in the greatest abundance in any situation tolerably marshy and wet, or where a moderate supply of water may be commanded. A few stakes should be driven in at the intended width of the bed to be made. Inside of these place some boards to hold the soil. Throw in to fill the bottom some small stones, and upon the top of them eight or ten inches of black bog earth, so that the lower three or four inches are immersed in the surrounding water. In this bed a few plants should be set, which will, in the same manner as the strawberry, soon cover the whole surface. The crops obtained will be both abundant and regular, and a small area will supply a large family.

A. J. DOWNING.

Botanic Garden and Nursery, Newburgh, near New York.

FLORICULTURE NEAR BOSTON.

WE have not had time to visit, as we wished, the horticultural establishments in the neighborhood of this city; we shall shortly, however, endeavor to obtain permission from gentlemen in the enviable possession of them, that we may communicate some idea of the state of Floriculture in a place which we have ventured with confidence to make the head quarters of our Register. We were not fortunate enough to meet with the gardener at Col. T. H. Perkins' elegant residence in Brookline, and have therefore to confine ourselves to a notice of the Conservatory of J. P. Cushing, Esq., at Watertown, which was liberally thrown open to us for this purpose.

The grounds and gardens were under the dominion and protection of snow, and consequently afforded but little room for observation. The contrast on reaching the Conservatory, however, was like the arrival of the thirsty Arab and his horse at the green and watered spot, the Oasis in the desert; and it was only after satiating our first desire by a general view, that we could calmly consider and admire individual objects.

Amidst a profusion of flowers of the varieties of *Camellia japonica* and *Scarlet Salvia*, of Chinese Primrose and *Oxalis*, we particularly noticed a number of *Schizanthus*, in pots; scarcely any plant presents a more elegant appearance than this, when under proper cultivation; the writer grew them very successfully early after their first

appearance in Europe, but thinks that Mr Haggerston, the intelligent superintendent of this establishment, has surpassed him.

Justicia speciosa with its beautiful blue flowers was delightful to the eye ; it is certainly the pride of the almost tropical tribe, few of which are entitled by their appearance to a place in the conservatory.

Euphorbium Poinsettii is, however, at present the great attraction of the stove. We believe it is a natural production of Mexico, named after the American Minister there. To the general observer the splendor of its large and numerous bracteal leaves, which are of a brilliant deep scarlet, is much more striking than the flower ; yet this possesses more than common interest for the botanist, being a recently discovered variety of a family of plants, the structure and classification of which has divided the opinion of the most scientific ; and the full elucidation of which may only be expected from the examination of new specimens.

A cursory view of the pretty variegated *Euphorbium*, (which was discovered by Mr Nuttall, in the Arkansas territory, and is, we believe, rather generally dispersed here), will render what follows intelligible. Linnæus, and after him many, even some of the latest publications, have classed *Euphorbium* amongst the plants with twelve stamens and three pistils, (*Dodecandria trigynia*), and the flower will be perceived to contain about twelve stamens with their anthers ; from the centre of which rises a single filament, bearing a three celled capsule, (seed pod) with three pistils on its summit.

The celebrated botanist, Mr R. Brown, however, with that acuteness which characterizes all his botanical researches, discovered in a specimen of an undescribed variety of *Euphorbia* from the coast of Patagonia, then in the herbarium of Sir Joseph Banks, that each of the twelve stamens with their anthers was in reality a separate and distinct sterile flower, and the single filament with the capsules and pistils rising from their centre, a distinct fertile flower. This view of its structure would therefore assign it a place in the Monœcious class of Linnæus, containing those plants which have sterile and fertile flowers distinct on the same plant.

Jussieu had obscurely remarked that this might perhaps be the case, but Mr Brown seems to have exhibited ample proof of it, and has observed the same appearances, although not so clearly defined, in *Euphorbium punicea*, which resembles *E. Poinsettii* in the growth and scarlet leaves, but, from what we only cursorily saw, not in the flowers. It is possible, however, that it may contain even more marked indi-

cations of the distinctness of the two flowers than *E. punicea*. We hope to be able by the kind permission of the owner, again to examine this magnificent production, which as it is so rare and yet fugacious, we should be glad to see rendered permanent by the pencil of the artist. The pure nectar exuding through the singular opening in the flower looked like crystal studs on a greenish yellow surface. One of the Euphorbiaceæ with much smaller scarlet leaves, grows wild at the entrance of the Governor's farm near Matanzas, in Cuba, about one quarter of a mile from the town, on the road to the fort. We have also seen it formed by clipping into low scarlet edgings, round flower beds in the gardens on coffee and sugar estates. We should be pleased if any of the numerous visitors to that island would bring home either plants or dried specimens of it.—We were obliged to content ourselves with only a passing glimpse of many other fine and interesting plants in this splendid collection of the vegetable kingdom.

The whole appearance of the Conservatories at Watertown is that of magnificence. We think, however, if the summit of the square building at the back could be replaced by a dome, or slender cupola, and glazed, it would be more in unison with those impressions of lightness and elegance which extensive structures of glass usually convey.

We had still time to pass negligently through Messrs Winship's Green-house, and admire the pretty *Rivinia* with its racemes of transparent scarlet berries, the ornament of the hills in many districts of Cuba. All the plants looked in perfect health, and clean, which adds considerably to their effect. We were delighted to observe our favorite tribe of Heaths, (*Erica*.) in such variety, *Mammosa*, *Colorans*, *Cerinthoides*, *Versicolor*, *Gracilis* and many others; this family is destined ere long to be extensively cultivated, and more extensively admired in this country; forty or fifty varieties flowering naturally every month in the year. We have seen a collection of nearly four hundred different species, and trust to be able to give colored plates occasionally of the most beautiful, as our portfolio abounds in correct drawings of this class. We are more confident on this subject as Mr Murray, Messrs Winship's head gardener, appears so perfectly well versed in that indispensable qualification for a Nursery—the propagation of plants. The sale of one Nurseryman, near London, exceeds annually five hundred of *Gracilis* alone. It is the easiest in propagation, and is a perfect miniature of the lofty pyramidal pine; in size from six to eighteen inches high, and covered with its beautiful rose colored flowers from November to February.

The bulbs imported from Holland looked very healthy. Our only objection to this tribe is, that when any one begins to cultivate them, they are apt to be too fascinating, and withdraw his attention from almost every other branch of floriculture. Griffin, whose name is given to a beautiful bulb, *Griffinia*, and the Hon. Mr Herbert, with many more, are examples of this.

Our friend Winship would not let us part without tasting the fruit fresh from the *Shepherdia*, and afterwards comparing it with marmalade and preserved fruit from the same tree. We thought fresh fruit in the open air, after the thermometer had indicated at least 20 below zero, rather paradoxical, yet we assure our readers that we preferred it to the currant in either state; the flavor is very delicate, and like every fruit fit for winter, is but slightly acid. It appeared to us well calculated for hedges, but as it is a diœcious plant, that is, bearing fertile blossoms on one plant, and sterile on the other, they should be placed alternately. It was discovered by Mr Nuttall, on the Rocky mountains, and was by him named after Mr Shepherd, of the Botanic Garden, Liverpool; a man to whom the lovers of plants are as much indebted as to any man of the age. J. E. T.

EXTRACTS FROM EUROPEAN PUBLICATIONS.

LOUDON'S GARDENER'S MAGAZINE for December is chiefly filled with accounts of the horticultural exhibitions in various parts of Great Britain. The *Dahlia* and *Pelargonium* (*Geranium*) appeared to predominate and attracted most attention. Loudon seems to have been satisfied by Mr Don, that *Dahlia* is the most proper name for this universal favorite, and has consequently given up the appellation of *Georgina*. A grafted *Pelargonium* caused much observation.

The decoration of one of the rooms devoted to an exhibition comprised a collection of lofty arches, arranged as a hexagon around a pillar, on the top of which was placed a large and splendid *fuchsia*, its thick clusters of blossoms gracefully bending over. From a point on the side of the hexagon sprang three triumphal arches, occupying the remainder of the tables; the shaft of each arch was surmounted by a *Corinthian* capital, formed of *dahlias*; the framework of the whole was tastefully decorated with laurel and *dahlias*. Six to eight thousand blooms were employed in this exquisite show. Add to this the magnificent exhibition of fruits and vegetables which

covered the tables, and the vast assemblage of the *fairest* flowers in creation, we affirm that the coup d'œil was as imposing as the most imaginative mind could represent to itself. Another decoration was a Bird of Paradise elegantly formed of Heart's Ease (*Viola tricolor*.)

The following are the names of a few Dahlias, whose beauty is represented as beyond all praise. Barret's Susanna, Tincta, Le National, Picta formosissima, Springfield Rival, Harris', Queen's, Levick's Incomparable, and Melancthon; this last was so black that scarcely a shade was distinguishable between it and a lady's black gown placed in contrast.

The shows of Pelargonium were exceedingly numerous, and splendid beyond all precedent.

A new white rose of the variety odorata, called the Camellia rose, was much admired.

A new Camellia, named Fordii, a hybrid, between Lady Hume's Blush and the Myrtle leaved, very distinct and beautiful, drew much notice.

The best seedling Calceolaria was Pince's Præcipua. The new pure white variety of Rhododendron arboreum was also exhibited and elicited considerable applause.

A new Petunia (*Willmoreana*) was exhibited — a hybrid, between Nyctaginiflora and Phœnicea, of a fine marbled pink color, with a reticulated tube.

A self-acting fountain at one of the exhibitions, pleased many — as soon as we can procure a description it shall be laid before our readers.

In one room there was suspended over the chimney piece an extraordinary production of twenty stupendous bunches of black grapes on a single shoot, from the garden of Earl Fortescue. Strawberries of Keens' Seedling and Wilmot's Superb, were exposed to view, sixteen of which weighed one pound.

The largest Duchesse d'Angoulême pear weighed twentyone and a half ounces, and the largest Chaumontel, twentyfour and a half.

At the Island of Jersey horticultural exhibition, fifty Chaumontel pears were shown, weighing fortyone pounds, the two largest of which weighed ninety six ounces.

At the Guernsey Horticultural Society, six heads Cobbett's Indian Corn were exhibited, and six heads Baron Louis' Corn, one of which had thirty grains in a row in length, and twelve in girth.

Thus far Loudon; for ourselves, what pleases us most in the whole of these exhibitions is to observe the number of cottagers' prizes distributed for the production of superior fruits, vegetables, and flowers

in their little gardens. If ever England is saved from convulsion, it will be in part owing to the steady conduct of men thus endeared to the soil they inhabit; the ground they dig, the fruit trees they plant, the flowers they rear with their own hands are part and parcel of their family, and share their affections. Such a class are the main strength of a nation, and when properly led by the influence and example of those superior to them only in wealth and education, become its pride and glory; on the other hand when ground to the earth and impoverished so that they have not an interest even in as much land as the soles of their feet cover, they become the very reverse — and deep wo will surely betide the nation where the Almighty in his inscrutable decrees permits the ascendancy of such men, for how brief soever a space it may be.

The new Variegated Azalea, which has been so often attempted in vain to be brought from China, is at length fairly introduced and may be had of Mr Knight, Nurseryman, Chelsea, near London.

We learn that the enterprising and indefatigable botanist and naturalist, Mr Drummond, is now traversing the district of Texas, from the mouth of Rio Brazos and San Felipe de Austin, in the interior. He has sent to Europe very valuable despatches both of animal and vegetable productions. Texas offers a rich harvest to such enthusiasts in science. The Horticulturist is already under great obligations to Mr D. for the numerous fine plants he has introduced into notice. Mr Douglas,* a worthy fellow laborer in the same field as Mr Drummond, has been botanizing in the Sandwich Islands. In the volcanic district few specimens were met with, except ferns, the beauty of which springing from the lava are vividly described by him. He states the sound of the volcanoes as surpassing the noise of all the steam engines in the universe. His last sleeping elevation was ten thousand feet above the level of the sea. He suffered much from heat, his eyelids as it were being parched and almost dried up.

At the Edinburgh meeting for the Advancement of Science, J. F. Boyle, Esq. read a paper on the progress of successive vegetation at various heights on the Himalaya mountains in Asia, the highest range known in the world.

* By brig Carribean, Rice, arrived here 25th ult., from Omoa, we learn that a Dr Douglas, a scientific Englishman, had been killed by a wild bull while on an excursion in the mountains of Hawaii, and fear that this melancholy occurrence can only refer to the above named gentleman.

Mr Pentland read a curious paper, on a peculiar race of men, supposed to have constituted the inhabitants of the elevated regions, situated between the fourteenth and nineteenth degrees of south latitude in South America.

M. Quetelet, of Brussels, we believe the inventor of the Phantastiscoscope, has written a letter to Professor Whewell, of Cambridge, England, stating that he has reduced to mathematical calculation the law of population, and that this mathematical calculation is in theory similar to the form of that used in the calculations of the planetary system. M. Quetelet is aware how visionary this theory may appear, but requests that it may be tested by the results observed in the United States, England and elsewhere, which he announces as nearly ready to be laid before the public in an essay on the subject.

CURTIS'S BOTANICAL MAGAZINE, edited by Professor Hooker, for the month of December, contains

Rhodochiton volubile, called so from two Greek words, signifying *red garment*. Mr Don named it *Lophospermum*, supposing it to belong to that tribe, but we think Professor Hooker has clearly shown that it is entitled to its present appellation; it is a tender annual climbing plant, of a brilliant purple, with an open ringent (gaping) flower, like *Mauraudia*; it will blossom here in the open air, if early frosts do not destroy it, but is certainly more in its place in the greenhouse. Many of our readers must remember the beautiful specimens of *Lophospermum* exhibited at the Horticultural Society last autumn, by Messrs Hovey & Co.

Gaillardia bicolor, variety *Drummondii*; a beautiful scarlet flower edged with yellow, of the order *Compositæ*; raised from seeds sent from Rio Brazos, Texas, by Mr Drummond.

Calandrinia grandiflora, a small, delicate, light purple flower, belonging to the family *Portulacææ*.

Nierembergia flicaulis, a small elegant flower, of the family *Solanææ* (to which the potato belongs).

Nierembergia calycina, we think more elegant than the former; a pure white flower, with a long tube, somewhat resembling the long flowered *Marvel* of Peru (*Mirabilis jalapa*).

Heliopsis laevis, a yellow flower, rather like the *Sunflower*; hardy, herbaceous.

Hæmanthus carneus, a bulbous plant, of the *Amaryllis* tribe; very delicate light rose color; broad leaves, which are only two, densely covered with hairs; a green-house plant.

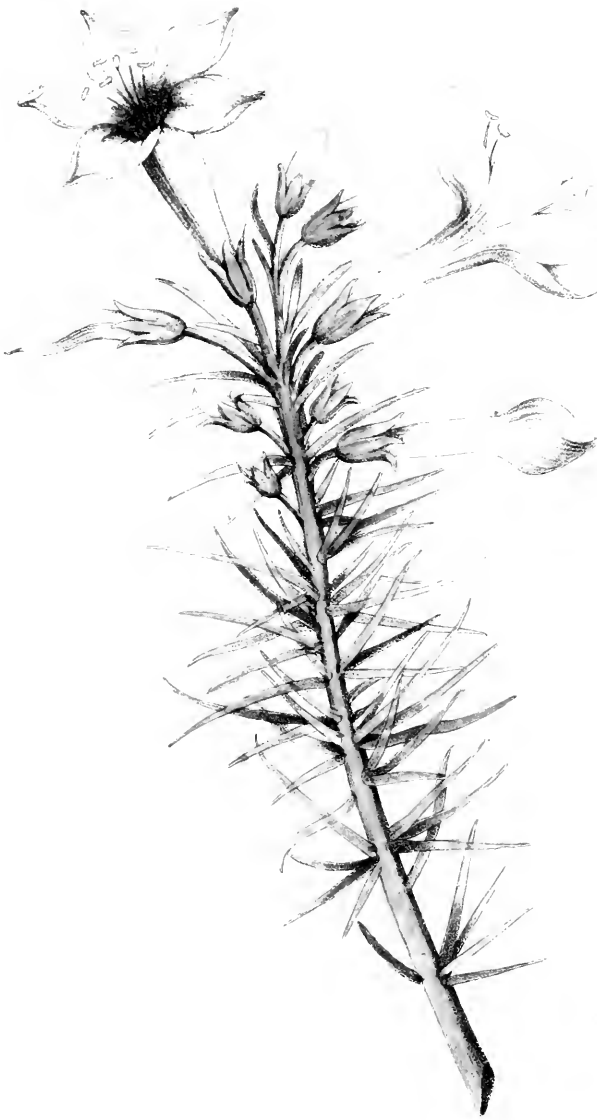
J. E. T.

GARDENER'S WORK FOR FEBRUARY.

MANURE may now, if the weather and the temperature will permit, be carried and laid in the garden, but should not be spread till later in the season. Provide, if you have not already, bean poles and pea rods, which you will place under cover, if practicable, till wanted. Dwarf peas will generally need rods about three feet. The middle sized those of about six or eight feet, and such as Knight's Tall Marrow, nine or ten feet. The same sort of rods which the tall growing peas will require will answer for most kinds of pole-beans. The Lima beans will need strong poles, eight or nine feet high. Where the absence of snow will permit, you may rake together and burn, or deposit in a compost bed, the haulm, straw, stalks, vines or other remnants of last year's crop. Prepare frames and straw mats for hot beds, trellises for espalier trees, &c. Repair garden tools, and procure new ones if necessary. It is, or soon will be time to prepare hot beds. Writers have given long and somewhat tedious directions relative to this process, but the following we believe is sufficiently particular for most purposes.

Mark out your bed about six inches larger on all sides than the size of the frame with which you mean to cover it. This frame is usually about six feet in length and three in breadth, and is covered with glass set in sashes, twelve panes, seven by nine. The sashes are hung by hinges on the back side, so that they may be raised up or let down in front at pleasure. The frame or box is light on all sides, and generally about twelve inches high in front and eighteen inches high on the back side.

Mark off the bed to the size before mentioned, dig it, and cover it with litter from a horse-stable. Then, by several layers of horse manure laid on with a fork, raise the bed as high as you wish. This bed being formed, and having stood two or three days with the frame and lights placed over it to protect it from rain, it is next covered with from six to twelve inches of rich earth. In severe weather the sides of the bed are often protected by bundles of straw, or fagots, which prevent the escape of the heat. If the fermentation is too powerful, and the heat too great, give it air by raising the lights in your frame until you have obtained the right temperature. This should be from about 65° to 75°, Fah.; not higher than the last mentioned in the day time, nor lower than the first at night. It is said that experienced gardeners can judge of the proper temperature of a hot-bed by placing a hand upon, or within it.



For the Horticultural Register.

London. Lillies' Bazaar

THE

HORTICULTURAL REGISTER

AND

GARDENER'S MAGAZINE.

MARCH 1, 1835.

CANTUA CORONOPIFOLIA, OF WILLDENOW.

IPOMOPSIS ELEGANS, of Michaux.

WE re-publish from the New England Farmer a communication on the subject of this plant, for the purpose of introducing to our friends a colored figure of the flower; our sheet confines us merely to a side spray, as we prefer giving it of the natural size, rather than a much diminished representation of the whole plant. That from which this drawing was taken grew seven feet high, the centre spike covered every morning with fresh flowers, and surrounded by six or seven of these side branches rising from about half the height of the plant, forming altogether a splendid ornament to the garden. Mr Nuttall, who is no mean authority on the indigenous plants of America, states that this is perhaps the most splendid and elegant plant in the United States.

It seems to have been known in Europe as early as 1726, being originally brought from Peru, and receiving its present appellation of *Cantua* from the native name *Cantu* — but remained a rare plant until recently introduced from Carolina where it has been found wild. It certainly deserves room in every collection of plants, even where beauty alone is the object, it belongs to the *Pentandria monogynia* class of Linnæus (or five stamened and one pistilled) — and to the family of *Polemoniaceæ* in the Natural arrangement.

“ Last spring, a distinguished lover and promoter of horticulture in Boston presented me with seeds of a beautiful flowering biennial plant

from Georgia, *Cantua coronopifolia*, which here as well as in Europe has been treated as a tender plant, requiring the protection of glass during winter. It appeared to me from its structure, being covered with a soft down and some other indications, to be a fit plant for an experiment on acclimation; — with this view I proceeded as follows :

Ten plants remained entirely exposed during the winter on a perfectly open spot — these are without exception flourishing.

One plant placed on a grass bank facing the south and protected from the north wind — is also flourishing, but began to vegetate rather earlier than the preceding, and is now a very fine plant.

Ten plants I covered the roots three inches with hay, and raised a bank of turf all round one foot high six inches wide ; this I covered with straw ; these all died, having perished at the surface of the earth where covered with the hay, the tops still remaining green.

Two plants, I placed in pots and kept in the parlor ; these were much drawn or etiolated as the botanists term it ; on exposure to the winds in April one was killed, the other remains alive, but is by no means so strong as those which remained exposed, although much taller.

I do not know that physiological botanists have yet undertaken the examination of the structure of plants with a view to their different sensibilities of temperature, and it is certainly a subject rather difficult to approach — but much may be done in this way by the collection of such facts as the preceding. Besides every addition to the number of hardy flowering plants is an addition to the pleasure of those horticulturists whose means do not place them in possession of glass structures for protecting them during the winter.

Most truly yours,

J. E. T.

[For the Horticultural Register.]

REMARKS ON RAISING NEW VARIETIES OF PINKS.

BEING unaccustomed to write for the press, a very plain statement only can be expected, but it may be depended on as the result of long experience.

The effects of impregnation or in other words of assisting nature in improving and diversifying the common pink, *Dianthus caryo-*

phyllus may appear to some a work of great labor and minuteness. In the case of fruits, it requires many years before the effects of impregnation can be ascertained ; but with the pink it does not require more than two years before a splendid collection may be obtained. It is necessary in almost all other genera to divest the flower of its own stamina at an early stage of growth, but the pink being naturally defective in stamina this is not requisite, so that a great many plants may be impregnated in a very short time — all that is necessary is merely to put the antheræ, which contain the pollen of the single flower, in contact with the pistil of the multiply or nearly double flower, shedding some of this pollen on it. When the seedlings have come into bloom look carefully over them, and of the single only preserve those with good color and leaf, throwing the others away to afford more room for those selected for impregnation.

In all my experiments I have found that the best and surest method of procuring seed that will vegetate is to use this artificial impregnation, and by no means to trust to nature, although many of the multiply flowers may be found possessed of stamina and antheræ.

My desire to see this beautiful flower more generally cultivated by the American florist has induced me to offer these few observations, in hopes that the ensuing season will not be suffered to pass without many of the lovers of flowers trying the experiment.

ROBERT MURRAY,
Gardener to Messrs Winship, Brighton, Mass.

We recommend an attentive perusal of the following communication, not only on account of the information it contains, but also because it is a perfect example of the success which usually attends acute and intelligent observation and reasoning combined with real practice.—T. G. F.

[For the Horticultural Register.]

ON THE CULTIVATION OF ASPARAGUS.

HAVING had considerable experience in the cultivation of asparagus, and been so far successful as to raise it nearly two inches in diameter, or between five and six inches in circumference, some of which I exhibited at the Massachusetts Horticultural Society, in the spring of 1833, and which obtained the Society's premium for the largest and best asparagus : having, also, for several years past sold

in Quincy market from seventeen to twentyfive cents the bunch, when the same sized bunches of the common kind were selling from six to ten cents, I am induced at this time to inform you and the public of my method of growing this delicious vegetable. I sow the seed in the same manner and time with blood beets in the spring, preparing the ground in the same way, as the young or seedling plants will thrive in soil that will grow good beets. I generally sow, and think it the best way, one row of beets and another of asparagus alternately, one foot asunder, which brings the beet rows two feet apart, the proper distance for this vegetable.

As asparagus makes a very small growth the first season it will not in the least interfere with the beet crop; on the other hand, I think it is rather an advantage to the growth of asparagus, as the large leaf of the former serves to protect the weak and slender shoot of the latter.

The nature of the plants likewise differs so materially, one having a long tap root, calculated to draw deep from the soil, the other very small fibrous roots, which invariably, in this plant more than any I have observed, draw juices from the surface; in this case neither draws food from the other, as is apt to be the case when different vegetables, of the same habits and wants grow near each other.

The second season after sowing it will be necessary for the asparagus to occupy the whole ground, the rows being two feet apart, a very proper distance; as the plant makes a large growth the second year, they may stand in the seed rows within an inch of each other. By the above method I have raised from 2 to 5000 roots a year, which I have sold.

In choosing and preparing the ground for putting down an asparagus bed, as it is called, I select a piece of ground that has been under tillage the year previous; a sandy loam if I have it; if not, I add sand, the washings of roads or other materials, to bring it as near the nature of the above named soil as possible. I then plough very deep if the soil will admit, 10 inches or more; cart on and spread about twenty cart loads of manure, or in that proportion to the acre. I prefer fresh or unfermented horse manure for this as well as for most other crops. After this, cross-plough not quite so deep as before, and trench furrow by running a plough both ways in the same furrow, four feet apart; clear out the trenches with a shovel ten inches deep and one foot wide at the bottom, throwing the earth into ridges between the rows as even as possible; lastly, I draw in from

the sides of the trenches a small quantity of fine earth, about one inch deep, levelling it with the hoe as it is drawn in, and the ground is prepared for planting. It is very important that the roots should be taken up carefully and exposed as little to the sun and air as possible previous to planting. My method is to start them from the seed bed and put them under cover or into the cellar as soon after digging as possible; then part the roots, which come up in bunches, suarled together, cut off the fingers (so I name the roots) that are broken and ragged and pack them away in meadow moss until I am ready for planting, which is performed as follows: The roots are taken to the field in a basket, packed in moss, and lifted out as you plant, placing them in a straight line on the bottom of the trench, from twelve to fourteen inches apart, taking hold of the crown of the root and pressing it gently down, carefully spreading the roots or fingers horizontally in every direction, as the roots of asparagus naturally grow horizontal—and the fibres or feeders extend upwards to the surface; this I ascertained by examining a bed that had been hoed after cutting time, in June, immediately before a smart shower. The surface of the earth was literally covered with small white fibrous roots. As the bed was situated at the brow of a large hill, a part of it was gullied by the water in one or two places below the main roots, where I had a fine opportunity to examine both roots and fibres. There were few, if any fibres two inches below the main roots, notwithstanding that the bed was put down according to the old method, deep trenching, and filling in six inches below the roots with good rotten manure, which I found safely deposited in rather a decomposed state, having laid several years without being disturbed either by roots, fibres, worms, or weather. It is necessary for a man to follow immediately after the one that places the roots in the bottom of the trench, who has some skill in the use of the hoe; moving backwards, taking care to step each side of the roots in the trench, so as not to disturb them, and with his hoe scraping from each side of the trench regularly, so as to cover the crown of the roots about three inches; and the planting is completed. A field or bed managed in this way has a handsome appearance the first season, if the ridges are kept neat and in a workmanlike manner. Between the rows of asparagus on the top of the ridges, I usually grow a very fine crop of tap rooted plants, which does not in the least injure it the first summer.

After the asparagus shoots have made their appearance about six inches above ground it is a good plan to draw a little earth around the

stalks about an inch deep, so as to kill the weeds, which may be repeated in the course of the season without injuring the row of roots on the ridge. The second year after planting, as soon as the frost is out of the ground, spread along in the trenches, which will then be three or four inches deep, about one inch of light compost manure; then with a plough back furrow every row separately, turning the furrows directly over the asparagus, making two bouts to a row, rake or cross harrow, and the bed will be level, requiring no more care that season except keeping down the weeds. The third spring, as soon as the weather permits, burn the old stalks on the ground, spread at the rate of twenty cart loads per acre, of good compost or horse manure, and plough it in, taking care to turn narrow furrows and not so deep as to injure the crown of the root; then rake or harrow, and the bed will be in readiness for gathering, or cutting, which should be done in the following manner: As soon as the shoots project five or six inches above the ground, and before the buds begin to open, cut them off with a knife about one inch or less below the surface of the ground; (not three or four as is recommended by some theorists,) as all that grows below the surface is stringy and tough and not fit to eat. The old stump immediately decays, and makes the best of food for the plants. I continue cutting, about two months from the time I begin in the spring, having no regard to the twentyfirst day of June, or any other particular day, as the plant naturally produces a given quantity of shoots every season, without injury to the root.

The above method should be pursued yearly, as long as the bed lasts, which in this climate, I presume will continue to produce well from thirty to forty years, under the above treatment. The bed that produced the large shoots I spoke of, was put down in 1819; in 1833, the season I sold my farm, the produce was equal, if not superior, to any former year.

Yours, &c.

D. CHANDLER.

Thompson Island, Feb. 9, 1835.

ON ACCELERATING AND RETARDING THE MATURITY OF FRUITS AND VEGETABLES IN THE OPEN AIR.

EVERY gardener who supplies markets is aware that fruit and vegetables exposed for sale early in the season generally obtain higher prices than those brought when the bulk of the crop comes forward.

Private gentlemen keeping gardeners are also equally alive to the luxury of having their tables spread with fruit and vegetables at least as early as they appear at market. It seems therefore a point of some importance to gardeners to seize every advantage which situation, the nature of the soil, or the experience of others offers to effect this purpose ; and while I lay before the readers of the Register the result of my own experiments and observations, I earnestly solicit from others, communications on a subject which opens a field of so much interest both to the intelligent observer of the laws of vegetable life, and to the practical Horticulturist.

In one of the numbers of Loudon's Gardener's Magazine, I observed a method of obtaining early strawberries by planting them in intervals between bricks laid like a bank slanting towards the south ;—pursuing this idea I raised a bank of rich earth about three feet high, running east and west, that is, one side south, the other north ; this I faced with the irregular masses of pudding stone which abound in this vicinity, leaving spaces in which I planted strawberries. My reasoning was, that the stones, by preventing evaporation, would keep the soil moist in which the roots grew, a state very favorable to the swelling and size of the fruit ; that the heat of the sun imbibed by the masses of stone on the south side where the fruit lay, would ripen it earlier ; particularly, being dry, they would not so soon cool as the earth, the evaporation from which produces considerable cold on the surface ; that the berries reposing on the stone would be kept free from dirt during heavy showers ; and lastly, that while the south side was earlier, the north would be somewhat retarded ; and thus prolong the period of enjoying this wholesome fruit.

My expectations were, however, only partly fulfilled. I had a good crop, very clean, some late, but not more than a dozen or two were in advance of my neighbors. On these results, I observe, that my bank although three feet high had no additional shelter by palings or fence behind it, against the cold north winds, which prevailed far in the summer of 1834, and which certainly penetrated the north side, keeping the temperature of the earth round the roots of the south plants so low as to check advanced vegetation. Again, gardeners employed in forcing are aware that those plants alone are fit for their purpose which have gone earlier the preceding autumn into a state of rest ; consequently, it is probable that with proper shelter, such a plantation would be some days earlier the second year than the first, the plants having gone sooner into the above state. I

will mention that by the assistance of a few hand glasses and Russia mats, I have seen a south bank of strawberries, well protected by a wall, in fruit eight days earlier than the common crops.

The fruit of the strawberry plant may also be postponed by pinching off the flower buds, as soon as they can be discovered, but carefully, so as not to injure the leaves or the heart of the plant, until the second or third week in June, when they must be left to fruit, always destroying the shooting runners, and observing that in hot weather they must be plentifully supplied with water or the blossoms will shrivel and be sterile ; this is an easy task if the plan of a bank such as I have described is put in practice, because the ridge at the top can be made with a channel capable of being quickly filled with water, which will then gradually soak through the whole, without being rapidly evaporated at the surface.

With the deepest respect for Mr Knight and other writers on the subject, for well their labors entitle them to this feeling from every cultivator—I am yet inclined to think that their expression of a state of rest for nature will prove something like that of the chemists of old, that “nature abhors a vacuum,” and the industrious researches now in progress respecting the structure and uses of the various parts of plants will probably prove that nature does not require rest, but is, during this state of *hibernation* or wintering, in silent and invisible, but active preparation for the spring and summer campaign, when she will inundate the earth with her innumerable hosts of delicious fruits and flowers, captivating and leading into sweet bondage all the dwellers thereon who come within reach of the beauty or incense of the latter, or the cool refreshing juices of the former. Similes are, however, little suitable to the tiller of the soil ; he will find enough to puzzle him in the general classes of Botany without meddling with the metaphoric class of flowers of composition.

The growers of seeds of culinary vegetables, might easily experiment on a small scale whether the seeds of plants forced one year would naturally vegetate earlier than those not forced, both being afterwards sown under exactly similar circumstances, observing that if it only made a difference of three or four days the first year, it might by forcing and management increase progressively the second year, and so on until by degrees this difference would at last become sensible. The same may be done with potato sets and many other plants.

If the first crop of peas were sown at the foot of a deep ridge

formed by the plough facing the south, it appears to me that the young and tender shoots just rising from the earth, would receive considerable protection against the early north winds, as I have often found plants growing on the south side of a stone shoot and blossom earlier than the same plant on the other side; any one may observe in a piece of ground ridged by the plough or otherwise that the white frost appears on the upper edge and perhaps half way down, while the bottom of the trench has not been touched. This is perfectly in accordance with known principles in meteorology. I have tried the above method with complete success, but not in this vicinity. Every person conversant with peach trees, must know that there is a difference of a full fortnight in ripening fruit on the same tree, owing no doubt to aspect, original earlier vegetation of some blooms, shelter from or exposure to the sun; all these and many other circumstances may furnish ideas for experiment to the acute observer, and intelligent cultivator. It is not improbable that if the bloom buds, which are late, were rubbed off, previous to opening, those in a more advanced state, might be strengthened and forwarded; there remains indeed on this subject much scope for the application of ingenuity and industry, which I should be extremely glad to see in active operation. To delay the maturing of gooseberries and currants and to preserve the fruit in its natural state until September or October, I should recommend the selection of those trees most abundantly provided with berries; as soon as these have attained their full size and are just beginning to ripen, lay a clean Russia mat over the tree, gather it together round the stem about an inch from the ground and tie it firmly up with a string; the object being to shade it almost entirely from the rays of the sun, it would perhaps be as well for the first month or six weeks to put on a double mat, removing the upper one time enough for the autumnal sun to penetrate that underneath. I have eaten fine gooseberries preserved in this way only with a single mat as late as December in England, but that year no frost of consequence had then taken place; here I fear we cannot promise ourselves exemption so late, and frost would infallibly injure the flavor.

I have said little in this communication respecting hand glasses, or what are cheaper and nearly as good for mere protection during cold nights, frames covered with oiled white paper; these are easily made by sawing sugar boxes in halves horizontally and fastening the paper in place of the top or bottom; they should be sunk an inch deep in the surface of the earth, and the crevices well stopped with putty. I

trust that future communications will enable me to add information of a much more valuable nature on this interesting subject, than is offered to the public in the present paper, my principal object being to give an impulse to inquiries and experiment. J. E. T.

HORTICULTURE, &c.

To the Editor of the Horticultural Register.

SIR — When any new work, calculated to benefit a particular class of persons, and through them the public, claims notice and patronage, it is the duty of every one who approves its objects to promote its success by contributing such observations and information as reflection or experience may enable him to afford; this consideration induces me to trouble you with this multifarious, though brief communication.

I am pleased to perceive that you have adopted the plan of giving the common, as well as the classical, nomenclature of the subjects to which you refer, and of translating the scientific language which it is often necessary to employ. Not one in a thousand of those interested in horticultural pursuits is acquainted with, or capable of comprehending, either the Linnæan or Jussieuan generic and specific terms, or to recognise in them, plants with which they are intimately acquainted; this observation is not only applicable to those entirely deficient in classical attainments, but to many who are well acquainted with Greek and Roman literature; without professing to belong to this latter class, I may truly state that I am tolerably well versed in both these languages, but, had I no other guide than Loudon's list in the formation of a flower border or a shrubbery, I should be totally unable to make the necessary selection of seeds and plants. Scientific catalogues are only to be understood by the professed botanist, who, by the by, will obtain but little instruction from Mr Loudon's, in many respects, very useful *Encyclopædia of Gardening*. All scientific works to be *extensively beneficial must be universally intelligible*. Having referred to Mr Loudon, I beg to point out a fault of which he and many other authors are too often guilty, and which, I hope, will be avoided by the conductors of the *Horticultural Register*. In the Index to the *Encyclopædia*, when we have found the word for which we sought, we are frequently referred to some antecedent or subsequent synonyme; thus, if we wish to know the place

where the culture of the Carnation is described, on referring to the Index we shall find "*Carnation*, see *Dianthus*;" how much of our time and some type would have been saved if the *page* had been given instead of the *synonyme*; which may however be very properly *added* in cases where, under the title of the latter, is to be found a more copious description, which it is deemed unnecessary to repeat. I have great pleasure in being able to confirm the facts communicated in your extracts from *Loudon's Magazine* with respect to *Mearns's coiling system of cultivating the grape, the culture of onions and the earthing of potatoes.*

Some years ago I succeeded in producing fruit at least a year earlier than I could have done by the common methods, by planting a Sweet-water grape in a way which, though not exactly corresponding with that described by Mr Mearns, I consider to have proved successful on the same principle as his, viz., by obtaining a superabundant supply of roots. I selected a shoot more than sixteen feet long, on which I left about three inches on each side of older wood; this I placed in a trench well manured, about twelve feet in length and six inches deep, and then bent the extremity upwards, taking off about a foot from the top and all the buds except two at the upper end; these eyes produced shoots nearly twenty feet long, and, being shortened at the commencement of the winter, to about half that length, yielded in the following season a good crop of excellent fruit. I should observe that the vine was trained on a gable wall, fronting the south, which it very soon entirely covered. I have no doubt that planting a coiled long shoot in a hole dug in a proper soil would succeed admirably; if the mould should be so light as to render the coiling difficult, three or more thin stakes of perishable dry wood may be inserted in the hole close to its sides, to which the buried coils may be attached by loose bass or other ligatures.

I am convinced by the following occurrence that Mr William Whiddon's opinion, relative to the *culture of onions*, (*Hort. Reg. No. I. page 26,*) is correct. In the beginning of last June, I called upon a friend, since dead, who, though more than eighty years of age, delighted in horticultural pursuits; knowing that I had a similar taste, he led me to his garden, which was well cultivated, and, in general, abundantly stocked; I however, remarked an almost total failure in his onion beds, which contained only a few, and these very weak, while all the alleys showed an abundance of vigorous plants. My friend told me that he believed the cause of this was that his

gardener, in covering the seed, had raked nearly the whole into the alleys; but I was of a different opinion. The soil was a rich light loam, highly manured, and as the early part of the season was remarkably dry, I was convinced that its want of compactness to retain moisture had prevented the seed in the beds from vegetating, while the treading of the alleys effected all that was required. The best crop of onions I ever saw was on a stiff clay, which was simply prepared by hoeing and raking off the weeds and spreading some well rotted manure about three inches thick, on which the seed was sown and covered lightly with good earth, provided for the occasion, which was flattened by the spade; the roots not being able to strike downwards spread near the surface and formed an abundance of large, healthy bulbs. I must not omit to state that when the plants were about the thickness of small crow quills, a liberal supply of wood ashes was sifted over them.

The remarks relative to *the worse than useless practice of earthing up potatoes*, I know from experience to be well founded, and the same may be made with respect to Indian corn. In the Western States, where the largest crops are produced, earthing is never practised; it is only necessary to destroy weeds by the horse or hand hoe.

I last year sowed two rows, each twentyfive yards long, of Knight's dwarf Marrowfat peas; one half of each row I planted in the usual way, earthing up the plants as they advanced in growth, the other halves I sowed at the bottom of trenches about four inches deep; those were left *concave* during the whole time of their growth which was evidently more luxuriant than that of the other portion; but a long and rapid succession of alternate cold rains and intense suns occasioned these and all the other peas in my garden, though sown at various periods and in different soils, to be so infected with mildew that nearly the whole produce was destroyed, and I had no opportunity of ascertaining the result of my experiment; those in the concave rows, however, certainly suffered least.

I shall repeat the experiments this year, and will, if you wish it, apprise you of the result thereof, and, also, of some trials which I intend to make in the culture of onions and other vegetables.

I am yours, with much respect,

February 17, 1835.

QUIVIS.

[For the Horticultural Register.]

AZALEA, RHODODENDRON, AND EPIGÆA.

HAVING in former communications, imperfectly noticed the *Kalmias*, I now proceed with other individuals and species of the beautiful natural order *Rhododendreæ*. The genus *Azalea* derives its name from the Greek *Azaleos*, dry, arid, either in allusion to the places where the plant grows, or to the dry and brittle nature of its wood. Most of the American species, however, are found in wet or moist situations. *A. nudiflora* is sometimes to be met with in an arid soil, in which case the flowers are of a more brilliant color. This genus belongs to the artificial class *Pentandria*, (five stamens,) order *Monogynia*, (one style) and consists of shrubs highly ornamental, and much prized for the abundance, beauty, and fragrance of their flowers.

The only species common in the vicinity of Boston is *A. viscosa*, which may be found in abundance among the brush-wood in low grounds, and is much admired for the fragrance of its flowers, which are produced in terminal umbel-like corymbs; mostly pure white, but sometimes varying to blush or variegated; hairy and glutinous (*viscosa*) on the outside; stamens longer than the corolla (flower), which in all the species is bell or funnel form, terminating in five unequal segments.

As we advance farther into the interior, thirty or forty miles, the beautiful *A. nudiflora* occasionally presents itself to the enraptured traveller, tempting him for awhile to forget the objects of his journey and admire the elegance and fragrance of its flowers. This as well as *A. viscosa*, is called by the country people, swamp pink, probably on account of the odor of the flowers, which has some resemblance to the garden pink; by them they are eagerly sought after, and form a conspicuous part of the decoration of the mantel piece in its season, the month of June. The color is commonly a fine pink, varying to a deep red, which is rare. Their beauty is much increased by the length of the thread-like stamens, being much longer than the corolla, which is naked or destitute of a calyx, from which its specific name is given — *nudiflora* or naked flowered.

There are as many as a dozen indigenous *species*, besides many varieties, to be found in different parts of our country, all handsome, and worthy the attention of the florist. According to Eaton, *A. nud-*

iflora alone has seven distinct varieties, all naturally produced, viz : *A. coccinea*, with scarlet flowers ; *A. rutilans*, with deep red flowers, *A. carnea*, with pale red flowers ; *A. alba*, with white flowers ; *A. partita*, with flesh colored flowers parted to the base ; *A. papilionacea*, with red flowers, the lower divisions white ; and *A. polyandria*, with rose colored flowers, with from ten to twenty stamens.

To the Chinese we are indebted for some fine species which have been introduced here from England ; some of these with slight protection it is said will endure our severe winters, while others can be preserved only in the green-house.

A. pontica is a beautiful species with yellow flowers, emitting the most exquisite odor, from Pontus. The juice in the bottom of the flower is said to be poisonous, and communicates its bad properties to the unwholesome honey of that country. The famous honey of Trebizond is spoken of by Xenophon, in his history of the retreat of the ten thousand Greeks, as having produced the effect of temporary madness, or rather drunkenness on all who eat of it, without, however, causing any serious consequences. Mr K. E. Abbott, in a letter read before the Zoological Society in London, describes the effect it has on those who eat it, having witnessed precisely that which Xenophon describes ; when taken in small quantities it causes violent headache and vomiting, and the unhappy individual who has swallowed it, resembles as much as possible a tipsy man ; a large dose will completely deprive him of all sense and power of moving for some hours afterwards.

It is said by Loudon, that some new and curious varieties or hybrid species have been produced by intercrossing with the Azalea and Rhododendron. Why may not then the *Kalmia* and Azalea, the Azalea and *Rhodora*, or the *Rhodora* and *Kalmia* be crossed in like manner ? What freaks might not nature exhibit when assisted by the art of man. What endless varieties might be obtained by thus mixing this interesting natural family together.

Here is a wide field, for the amusement of the man of leisure and horticultural taste. Azaleas require a moist peaty soil, or black sandy loam, and rather shady situation. Plants may be freely raised from seed, or from cuttings, layers and suckers.

If taken from the woods, the best way is to cut them off close to the ground ; they will throw up numerous shoots and form fine healthy plants.

Rhododendron maximum, or American Rose Bay, belongs to the

class Decandria, ten stamens; order, Monogynia, one style. The general term is derived from the Greek Rhodon, a rose, and Dendron a tree, because the flowers resemble in color bunches of roses. In the Northern States, it is a straggling shrub of very irregular growth, but one of the most magnificent in foliage and flower the country can boast of. It is abundant in the Middle States and in the mountainous tracts of the Southern, but in New England rare. It is found near Portland, Leicester and in a swamp in Medfield. At the last place the writer has been acquainted with it from a child; nearly a hundred acres or more are covered with it, and it forms an impenetrable undergrowth except when cleared away by the axe for the passage of teams. When the leaves are thrown into a brisk fire, they produce a violent snapping like the continued discharge of India crackers; for the want of a better name the plant was called by the few who were acquainted with it "snapping leaves."

The swamp being in a place of difficult access, and only frequented by a few in the winter, the magnificence of the flower was not known for many years, until at length it was discovered one season when in full bloom. Twentyfive years have passed, yet the sensation produced by the first sight of this splendid show is still in remembrance. Crowds of people flocked to the place and soon these superb flowers found a place in every house. The Rhododendron is generally under ten feet in height in this part of the country; but sometimes attains the height of twenty or twentyfive feet in a less rigorous climate. The places where it is found in New England, may be considered as far beyond its proper natural limits, and it will be met with only in warm swamps, under the shelter of evergreens and where the roots are protected by water which usually overflows these places.

The flower buds are often destroyed, even thus situated, in very severe seasons. When the leaves are beginning to unfold themselves, they are rose colored, and covered with red down; when fully expanded they are smooth, five or six inches long, of an elongated oval form, and of a thick coriaceous texture. They are evergreen and partially renewed once in three or four years. It puts forth flowers in June and July, which are commonly rose colored, with yellow or orange dots on the inside, and sometimes pure white, or shaded with lake. They are always collected at the extremity of the branches in beautiful groups, which derive additional lustre from the foliage that surrounds them. Previous to its expansion, the whole bud forms one large compound bud, resembling a strobilus or cone, each indi-

vidual one being covered by a rhomboidal bracte, which falls off when the flower expands. The corolla is monopetalous (one piece or petal,) funnel shaped, with a short tube, the border divided into five large unequal segments. There is but a small chance of plants succeeding which have been taken from swamps. The surest way to propagate it is by seed, from which it readily grows; but requires time and patience to bring it into a flowering state.

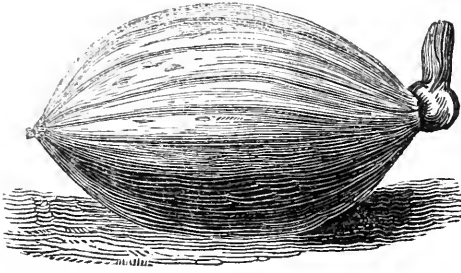
Many young plants are annually imported, which may be obtained in good order at the principal nurseries at a moderate price, and will soon come into flower. Shade and humidity seem almost indispensable to the growth of this shrub. Deeply shaded situations, where the atmosphere is laden with vapors, are most congenial to its growth. It is therefore well calculated for the shrubbery. With a little attention, it may be inured to stand the sun, and then forms a stately ornament for the lawn or grass plot. The proper soil is a light rich loam with moisture; it will grow, however, in almost any, and flourish on a strong heavy loam. It may be propagated from cuttings and layings from young healthy branches of ripened wood, and managed as ordinary plants, thus increased. There are many exotic species, which are beautiful and highly ornamental to the green-house. *R. ponticum* withstands the winter in the open ground if well protected, and possibly many others will, as most of them are natives of cold mountainous regions, and covered in the winter by alpine snows.

Epigæa repens is included in the same natural family as the preceding. The generic name is from Greek words, signifying upon the earth. The woody, hairy stem grows flat upon the ground, and throws out roots all the length of its branches. It produces delicate purple, flesh colored or white flowers, not so much distinguished for show as for fragrance, and very acceptable, on account of their early appearance about the last of April. The flowers are from two to six, in terminal or axillary bunches, on short hairy petioles.

Corolla salver form, longer than its double calyx. Leaves evergreen, alternate, oblong, heart shaped at base, hairy and rough, with hairy petioles. Class, Decandria. Order, Monogynia. This pretty, humble plant is found in abundance in this town, in the dry open pine woods, and often in the pastures. The common name is Ground Laurel. It will succeed in the garden if placed in the shade, and covered with leaves in the winter.

Yours, &c. . X.

Lancaster Garden, Feb. 6, 1835.



AUTUMNAL MARROW SQUASH.

MR JOHN M. IVES, of Salem, Mass. has furnished us with the above cut and the following description of a very useful vegetable.

Fruit obovate, depressed on one side; stem very large, and inclined upwards, almost at right angles with the fruit; a small truncate callosity at the other extremity. Color reddish cream, with spots or dashes of bright ochre when in maturity. Flesh orange, seeds large, pure white, with an elevated margin; average weight, eight pounds.

The above new variety of Squash, *Cucurbita melopepo* var. has been lately brought into notice in this vicinity, on account of the delicacy of its grain, and excellence of flavor. We have called it "Autumnal Marrow" as it comes in succession to the summer varieties, but may be kept throughout the winter.

A peculiarity in this variety is the extreme thinness of its skin, being of the consistency of the inner envelope of an egg.

We recommend it to all lovers of this vegetable for its many excellent qualities: we speak thus confidently from the testimony in its favor of those who have used it at their tables.

We find there is nothing gained by forcing the plants in a hot bed, as there is no difficulty in ripening the fruit in almost any season, provided the seed is sown as early as the first of June, or at the time of sowing the Canada Crook-neck, as it ripens much earlier than that variety. We think the plants are stronger and healthier raised in the open air than under glass. The greatest difficulty in the cultivation of the Autumnal Marrow is to keep it from the large squash bug (*Egeria cucurbitaceæ*.) If care is taken to destroy them previous to the depositing of the eggs there is but little trouble in checking them. With regard to the proper soil for their culture, we find that newly

broken up grass land is better than highly manured soil, as in the latter they run and grow so vigorously as to form the fruit too late in the season. In a quantity which we had raised on a highly manured spot, their average weight was but about five or six pounds; whereas others grown upon old grass land turned up in the spring of the same year, averaged from nine to twelve, and some larger. They should be thinned out on the appearance of the third leaf, to three plants in a hill. This vegetable is well worthy of cultivation not only for its fine quality, but for keeping well in winter. I have a number perfectly sound, which have been kept in the same situation with the Crook-neck since they were housed in October last.

ON THE CULTIVATION OF FLORISTS' FLOWERS.

[Continued from page 52.]

I MUST first acknowledge my obligations to the Editor for correcting the mistake in my last communication, *Dianthus caryophyllus*, belonging as he justly observes to *Decandria digynia* of Linnæus; his supposition that I copied it from Curtis's Botanic Magazine, is also right, except that he should have said "thoughtlessly copied." — This is one amongst many proofs that zealous florists are not always good botanists; but I am pleased to think that the reverse case is also frequently true, remembering that the celebrated English botanist, Sir J. E. Smith told a friend of mine that he had never cultivated a flower in his life—was he to be pitied? probably not, as there are many who would perish ere they would thrust forth their hand to mix the "villanous" manure which transforms and disfigures their plants so that they cannot recognise them as friends, which obliterates the beautiful stamens, and anthers with their delicate and curious mechanism for containing, maturing and ejecting the pollen, for fertilizing the ovaria, and producing seeds; finally, which replaces this exquisite organization with what? a parcel of *things* like bits of colored paper, UN-dignified by the florist's appellation of *leaves* instead of *petals*, almost without functions, certainly without parental cares,* the true painted Jezebels of the day, courting universal admiration, and removed forever from their own unobstrusive verdant banks, or the modest

* Double flowers scarcely ever produce seed.

retirement of their native woody shade, *sed de gustibus non est . . .* * *Exit* botanist in a Latin passion, which chokes the utterance of the remainder of his quotation, leaving me quietly to resume my humble task on florists' flowers.

The Pink *Dianthus*—the specific name is lost in clouds of antiquity, some think it originated with the Carnation from *D. caryophyllus*, others from *D. deltoides*, others call it *D. hortensis*; it appears to me from the growth, more like the progeny of *D. deltoides*; the botanic character is the same as the Carnation, as is also the process of raising from seed by which all the fine florists' varieties have been produced. I have written to London for several pairs of those, I know from experience to be most celebrated for affording fine seed, and I shall be very happy to see my old favorites arrive in health; if they prosper it will be a pleasure to me to distribute seeds to all who are inclined to make a trial of the cultivation of this fragrant ornament of the flower garden. Sometimes a cultivator is fortunate enough to raise one with rose leaved edges; but it is rare and thought much of; the fringed petals are not considered detrimental to the Pink, provided the indentations are small and regular, not jagged; but the great beauty of this flower depends on the distinctness and brilliancy of the color round the edge of the petals called the lacing, and that of the eye or centre; in some it is a dark black purple, in others a rich crimson, and the colored border must not be so deep as to cover too much of the white ground and destroy the contrast.

These flowers are also to be dressed; but as they are generally cut from the plant when exhibited, there is no necessity to make the slit in the circular card to admit the stem. Many who shew for prizes cut their flowers the evening before the day fixed, dress and place them in a small phial of water with a lump of saltpetre in it, keeping them altogether in the dark until the moment they are required for the exhibition. I own it has always appeared to me to increase the brilliancy of the colors, although a different result might have been expected from depriving them of light; but the effect of the saltpetre may be more easily accounted for. I ought to add that when I mention saltpetre, the refined is always understood, as that imported from the East Indies in its crude state, generally contains a variable proportion of salt and other matters say from five to twentyfive per cent, which might be very injurious to the vegetation of many flowers.

* *De gustibus non est disputandum*; free translation, there is no accounting for taste.

The Carnation is generally propagated by layers, a very simple operation. When the plant is about in the perfection of bloom lay around it one and a half or two inches of compost, first gently stirring the surface so that it may combine ; remove the lower leaves of the shoots selected ; pass the penknife slanting upwards, half through a joint ; fasten the shoot where so cut, about two inches under the surface with a small hooked peg, bending it up carefully so as not to break at the incision, then fix it very firmly by gently pressing the earth around with the fingers, and finish by cutting off about half an inch of the upper extremities of the leaves with scissors. The sap soon begins to granulate at the wound and throw out roots ; in about a month or five weeks, if kept tolerably moist they may be severed from the parent plant and established for themselves. It is better always to leave two or three shoots on the old plant to attract the juices of the earth, otherwise it is liable to die. This is the surest method of propagation, but is seldom resorted to for pinks, which are generally increased by pipings. These are the shoots cut from the plant at the second or third joint, according as they are more or less woody or juicy, and inserted pretty close to each other in a bed of proper compost well pulverized ; water moderately, so that the earth may adhere closely round the shoots ; when the moisture has somewhat evaporated from the leaves, cover them up with a hand glass, which must be forced a little depth into the ground so as to keep out the air : this need hardly to be removed until the plants have struck root ; they must be shaded, however, for the first fourteen days, with mats over the glasses when the sun is very hot. If properly managed, not one in twenty will miss, and between one and two hundred may be planted under one glass ; in a month or six weeks they will have shot up and be sufficiently rooted to move.

This country is happily exempt from one scourge of this tribe, an insect called the Earwig, whose beautifully folded gauze wings are the admiration of the Entomologist ; but I warn him as he would avoid the imprecations of the Carnation grower not to satisfy his curiosity by introducing them here alive. It is singular to see each of the sticks which support these plants decorated on the tops by the claw of the lobster, set as traps for this insect ; they creep up the stick into it at night or upon the approach of rain, and are there caught and instantly sacrificed to the goddess Flora, without remorse or attention to the beauty of their wings. Would I could record the same exemption from a more insidious, and less elegant foe, the wire worm, a little deep yellow creature in a tough skin, about half to three quarters of

an inch long, which dwells below the surface of the earth. You see your favorite plant droop, and on pulling gently find it to offer no resistance, having been nibbled away just above the root, by this voracious enemy, who is travelling fast away to banquet on another; they are generally found in the loam. I was horror-struck at seeing one of them in the first spadeful I turned up, and on trying to kill it, was assured of its being a real true tough wire worm. No artificial means of getting rid of this insect have as yet succeeded; when operating in the open ground the loam must be well examined and all found destroyed—when your plants are in pots the compost must be searched and your pots well insulated, by placing each pot on a small stand inverted in a larger stand, which then is filled with water. The aphid or green fly is easily managed by brushing off with a camel's hair pencil.

There appears in all this detail much trouble. I can assure those however, who undertake to cultivate these plants that they are anything but troublesome cares, while the reward is ample, and the sight of a beautiful bed of pinks, decorating the garden and exhaling its fragrance for a month or six weeks, is a sufficient remuneration for all the pains taken.

J. E. T.

[For the Horticultural Register.]

ON FORCING THE CHERRY.

BY EDWARD SAYERS.

THE cherry, although one of the best table fruits of its season, and perhaps requiring the most simple method in the act of forcing, has rarely been attended to according to its merits in the hot-house department in extensive establishments, where every other branch connected with horticulture has been duly attended to and cherished as a useful art. This inattention has probably been owing to the many failures that have been witnessed in forcing this fruit; which by some of the best practical forcers, has been considered extremely difficult and almost impossible to bring to perfection without extraordinary care and attention. This supposition has been grounded on the well known fact that the cherry will not thrive and perfect its fruit in a stagnant heated *air*, proceeding from *fire* or other *artificial* means, without the presence of atmospheric or external air, being freely admitted into the house to rectify the impure internal air. And

hence a very moderate temperature is recommended by writers on the subject, to be kept by the means of admitting plenty of *air* into the house and applying the least possible quantity of *fire* heat for the intended purpose. That many houses of cherries are entirely lost in the act of setting the fruit and the like, I have been well convinced at different times by too much confined fire heat; and I have also been fully satisfied of the success with which the cherry may be forced, if a proper method is adopted and pursued to counteract such pending injuries.

The cherry may be forced in pots; or the trees may be planted in the ground purposely prepared, and allowed to fill the house without the aid of training. In either of those methods a front stage in the house may be applied for the forcing of the strawberry, which always thrives well with the cherry, and many other vegetables may be forwarded on the shelves and other vacancies in the different parts of the house. Large stools of pie-rhubarb and sea-kale may be planted in boxes or tubs and forced from their crowns, which may be covered with old tan or light earth, so that the young shoots may push through without being crippled, and they will also bleach by this process; other varieties of vegetables may be accommodated in a small portion, as herbs, small salads and the like. If two small houses are to be employed for the purpose of supplying a family, which I would recommend, one for pots, and one for planting in the ground, the first house may be forced early with pots, which can be taken out of the house, when the fruit is picked, and a crop of grapes may be afterwards grown, by bringing in the vines in the front of the house about the middle of March, when its temperature will be suitable to the breaking of the grape.

PLAN AND POSITION OF THE CHERRY HOUSE.

The position of the cherry house should be to face a plain south aspect. The location on a dry, well protected spot, and if a little elevated the better.

The plan of the house I would recommend is simply to build a brick wall for the back of the house about 12 or 14 feet high; and a front wall, two feet above the level surface of the ground, the end the same; on the front wall upright sashes of two and a half or three feet in height may be placed, in such a manner as to admit air either by sliding down or being hung by hinges; or perhaps a better method than either, by running the whole number in a chase or groove, in such a manner that air can be admitted in any part or

place in the front, by taking out one, two, or any number of sashes from the end of the house, and drawing the remainder at an equal, or any distance required from one another. The ends of the house will of course be of glass; and the inside of the house of such a width as to give a span of the roof an inclination of about 40° . The top sash, which will of course slide, to be half the length of the roof, in order to give plenty of top air. The flues to run round the ends and front of the house to be 12 inches deep, and 12 inches wide in the clear, laid on a plank or with brick abutments nine inches above the level of the surface of the house. On the front and end of the flues may be placed a flat staging of three feet wide, for the reception of strawberries and the like.

MANAGEMENT OF THE CHERRY HOUSE.

Compost for the border or pots. The soil best adapted for the cherry, is a light, sandy loam, with about one fourth of well rotted manure from the stable incorporated therewith. A sufficient quantity of this compost may be thrown into a heap and well mixed together by turning and incorporating it together some months previous to its being used. It may here be observed that a greater portion of manure is always requisite for pots than for a border.

Making the border for the cherry house. The cherry like the peach is generally planted in the soil in the interior of the house, and requires the whole surface of the inside to be covered or filled with compost a proper depth, for the roots of the trees to travel into and obtain their requisite nourishment.

The earth may be taken out of the house two and half feet deep if a *dry* bottom; and if *wet*, three feet, in order to put six or eight inches of drainage of old mortar rubbish or the like; as it will be recollected that the cherry delights in a dry bottom, and seldom thrives on low wet lands. When the earth is taken out, the pit may be filled with compost, preparatory to planting the house.

Planting the house. The best time for planting the cherry house is in the fall of the leaf; great care should be taken in the selection of the trees; and every precaution be taken that they are well rooted, and that the fibrous roots are not cut off, in the act of taking them from the ground or nursery.

The planting the border may be performed by digging holes in the usual manner of planting of trees, at the distance of three or four feet apart, which will depend on the size of the trees to be planted.

The house should always be tolerably well filled at the first planting and the trees may be thinned according to their growth yearly in such a manner that they are not too much crowded. The position of the trees should be such, as to range under the glass in a sloping manner two or three feet below it. The back of the house should be planted first with the tall trees, and others of a lower growth brought to the front of the house. A distance of five feet should be left unplanted in front from the wall — two feet for a walk or alley and three feet for the front stage. If the soil is very dry when the trees are planted they may be moderately watered when they are to remain until the time of forcing.

CHOICE OF TREES.

Much depends on the choice or selection of trees for the house, especially if intended for pots; trees in such case, should have a well furnished top, the roots numerous and fibrous and of a regular ramification from the stem or centre of the butts. Care must also be taken that the tops of the trees have plenty of blossom buds, or no fruit can be expected; and the tree in every respect should assume a healthy vigorous appearance.

Potting the cherry trees. The cherry when intended to be potted, should be done in the fall of the leaf. Pots of the largest size used for green-house plants may be procured, into which some broken pots or other drainage may be put, when some fine earth may be put thereon; the roots of the tree are then to be plunged into the pot, and some fine earth well worked close to the roots, by shaking the pot and pressing the earth close with a stick and the hand. This done, the pots will require to be watered and placed in a sheltered situation previous to being put in the house for forcing. In the month of December the trees will require to be slightly protected from the severe frost by placing them in a southern aspect, and covering the pots with tanners' bark, horse manure, or the like, in such a manner as to keep out the frost, or at least partially, and that the pots may not be broken by it.

(To be continued.)

LEUCOPOGON RICHEL.

A great part of this article is taken from a number, not very recent, of the Botanical Magazine, part is taken from the report made to Admiral D'Entrecasteaux by M. Riche himself, and part from late communications.

THE *Leucopogon Richei* is a plant with a small flower of the *Epacris* tribe, and bears a berry somewhat resembling the huckleberry (*Vaccinium resinosum*). It is introduced into this publication with a view of giving an account of its discovery, and the hardships endured in the cause of science by M. Riche, whose name it bears.

Near the close of the last century, the French government sent out an expedition of two ships commanded by Admiral D'Entrecasteaux, in search of the unfortunate La Peyrouse, whose name must be familiar to many of our readers.

M. Labillardière, botanist of the expedition, to which M. Riche was attached as naturalist, relates, that the scientific gentlemen landed on the desert coast of Southern Australia, for the purpose of astronomical observations. M. Riche, leaving them to set up and fix their instruments, proceeded alone into the interior; quitting the beach some miles westward of Cape Le Grand, longitude 121½ East, with an intention of returning early in the evening, to the boat. He was so enraptured with the riches and novelty of all the productions of that region which no other observer had hitherto been known to visit, that quickly losing his way, he wandered to some distance inland over a country, occasionally presenting desert plains of calcareous sand — nor was he able to find his way back to the landing place until the third day, so that the distress which his absence had occasioned on board the ships was extreme. A boat was despatched on the second day from each ship, in quest of the lost naturalist; and the Admiral ordered guns to be fired every half hour to enable M. Riche, if still alive, to direct his steps with the greater certainty towards the anchoring place. M. Labillardière, who died at Paris, so recently as last January, at the age of seventy-eight, was himself one of the party in quest. They traced his steps on the sterile wastes he had traversed to the edge of a large lake, which they concluded had a communication with the sea, as its water was salt. The print of his shoes observed on the margin of this considerable water furnished encouragement to proceed in their search; but the marks of naked feet which appeared near his, gave grounds for apprehending that he had

been dragged by savages into the interior country. Moreover, one of his pistols and his handkerchief were found on the sands, and these strengthened in their minds the sad apprehension of a dreadful fate. Further on, a little smoke that arose from a deserted fire, directed their steps to the spot, and near it they found pieces of paper on which they recognised the hand writing of the unfortunate man. Around them a dismal waste extended far and wide, but no farther trace of Mr Riche could be found, when as they were returning towards the landing place deeply lamenting the fate of their unfortunate companion, and had nearly reached the shore in a hopeless state of mind, they beheld one of the boatmen running to meet them with the pleasing intelligence, that M. Riche was still alive, and that he had just reached the landing place, extenuated with hunger and fatigue, having been upwards of fiftyfour hours on shore with no other provision than some small pieces of biscuit.

When recovered from the state of stupor, into which he had been thrown, by so long a privation of nourishment, he related to his companions, that he had lost himself on the first day, but that near the fire which he had found burning, there was a little rill of fresh-water, at which he quenched his thirst, and urged by hunger he had ranged about in the neighborhood and in the thickets, and discovered a shrub which furnished him with some small fruit, in a quantity insufficient, however, for the supply of his necessities, yet without which it is probable he would have been unable to have returned alive.

To this plant of a species already known as *Leucopogon*, but a distinct variety, M. Labillardière attached the specific name of the recovered naturalist, as much out of compliment to him as to perpetuate the remembrance of the circumstances under which it had been discovered. At the little spring of water, a perfect oasis in this arid waste, he passed the first night, the next day was spent in a fruitless attempt to reach the landing place. In this painful peregrination, M. Riche saw in these wilds, at a distance, Emus, Kangaroos, and even some of the natives. All, however, fled before him as he advanced — but a kind Providence happily conducted him, parched with thirst, to the same little rill in the evening; there he spent also the second night. M. Riche in his report to the Admiral, says with much feeling, “I was on the point of fainting from weakness, when on the coast of the salt water lake, I perceived a spring of pure water; even an Atheist meeting with so unexpected a source of happiness, could not fail to be struck with the benevolence of a kind

Providence." Notwithstanding the distress to which his situation had reduced him, exposed as he was to all the horrors of famine, M. Riche carried during these two days a numerous collection of very interesting productions of the country he had traversed, but during the third day, his strength sunk so rapidly before he reached the boat, that he was obliged to abandon the whole collection, not being able to reserve even the most precious articles.

Yet, in this exhausted state, he made his observations on the singular motions of the Kangaroo, and the elegant gambols of their young, at that period but little known in natural history, and declares that the pleasure he experienced in seeing them made him almost forget his distressing situation. The natives always left their fires as he approached, and returned to them as soon as he had retired. The plant called in Africa Hottentot bread, *Mesembryanthemum edule* (eatable) was in abundance on the sandy plains, but the natives had carefully gathered all the ripe fruit, so that he was entirely confined to *Leucopogon* for support.

The last notice we possess of Mr Riche is, that he fell a victim to his love for science, having made, when already in an advanced stage of consumption, a long and fatiguing journey, in which he consulted his scientific zeal more than the state of his health.

The celebrated botanist Mr R. Brown, has substantially perpetuated his memory by giving his name to a very singular plant, likewise of this order, growing abundantly on the summit and sides of Mount Wellington, near Hobart-town. T.

ON COLLECTING SPECIMENS OF NATURAL HISTORY.

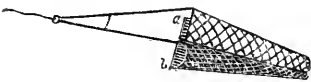
SHELLS.

As the subject of this paper is rather an inroad on the design of a Horticultural Register, I shall endeavor to be as brief as is possible consistently with the information intended to be conveyed, yet unless this information is clearly given, the article were better omitted altogether.

Shells are found on land, in fresh water, in the estuaries of rivers, at various depths in the sea, moving about or attached in different ways to the rocks on the sea shore, particularly at low water. Some penetrate the rock, and can only be obtained by carefully breaking it; others are on sea-weed or under the heaps of marine refuse on

the beach. They are divided into three classes, — Bivalves, consisting of two pieces, as the oyster, clam, &c. ; Multivalves, of several pieces, as the common barnacle which adheres to the bottom of ships ; and Univalves, of one piece—these are sometimes spiral, like the snail, or without a spire, and conical, as the limpet. Two things are necessary to fit all shells for the cabinet : the first is that they should not be water worn. Nature has endowed the animal which inhabits the shell with power to encounter or resist the force of the impetuous waves, and protect itself from being rubbed or dashed to pieces between the moving pebbles ; but when the creature has fallen a prey to its natural enemies, or is in any way deprived of life, its habitation is at the mercy of the tides, and is generally so worn and rubbed down as to destroy the outlines of its beautiful construction — such are therefore useless. The second is, that when gathered in a perfect state they should be carefully packed, that none of the delicate and elegant spinous processes which project from the surface be broken. Some of the bivalves, as the mussel, may, when the animal is removed, be opened wide without injury to the shell ; but others of this class have interior projecting teeth near the hinge, or exterior projections behind it, liable to be broken if opened far ; a few bivalves have also additional pieces of shell, called accessory valves or appendages, sometimes on the back, sometimes in the interior, attached to the animal near the hinge ; these must be carefully preserved whole, and also the edges of every shell, particularly those of the mouths of univalves. Some shells have an exquisite natural polish, owing to their being much enveloped in what is called the foot of the animal ; this a collector would not endeavor to improve. But others are covered with a crust or skin called the epidermis, thin, and either loosely attached or firmly fixed. This, although not often beautiful, belongs to the natural history of the animal and should therefore not be removed. One other part it is also necessary to preserve ; a horny or shelly appendage, called the operculum ; it is attached to some species of spiral univalves, and when they retire wholly within their shells it serves firmly to close the orifice or mouth.

The most effectual method of collecting shells is by means of an iron dredge in this form, with the fine net* *a* attached ; *b* is the straight iron edge intended to scrape along the bottom under water ; this may be let down from a boat or the side of a



*The net should hang loose, although represented as stretched out in the cut.

vessel when in shallow water, and dragged along until the net bag is full, when it may be drawn up and the contents examined. In raising it from the water, the iron edge should be kept outside, that it may not catch and be overturned.

To drag this instrument properly along, some little management is necessary; if it drags too heavily, the rope should be shortened. It works best when the end to which the rope is fastened is about a foot from the ground. There should also be a small rope attached to the back of the dredge to pull it back if it should get foul of the rocks, weeds, or other obstructions. Where wharves are constructing, or jetties carrying out into the sea, they are frequently filled up with sand from the beach, raised by large dredging machines worked by steam or animal power; this affords an excellent opportunity for collecting shells. On coral coasts, which abound in the tropics, it is impossible to use the dredge, and the finest shells are collected by bathers and those who dive.

Those which adhere to rocks, as the limpet (*Patella*) or chiton, may be taken by pouring hot water on them or pushing a knife or piece of stick under the shells to prevent the action of their sucking valves; this last method, however, is apt to break the edge.

Having collected the shells, they should be put with as little delay as possible into nearly boiling water. With many this will almost immediately contract the animals and loosen the ligaments which attach them to their habitation; they can then be drawn out by pieces of hooked wire, or in bivalves, as the oyster, a piece of blunt stick will easily detach it. Should they not readily loosen, a few days remaining in the water will ensure success. Shells which are found empty, usually called dead shells, are seldom worth preserving, if those with the animals in them can be procured. When clean and dry, pack the delicate and thin specimens in soft grass or cotton wool; the larger and harder ones may be wrapped in double paper and placed in a box, except when there are the before-mentioned spinous or other projections; these must be carefully protected from injury. Bivalves should be tied firmly together with twine or worsted to keep the shell closed so that the teeth which are situated near the hinge are not rubbed down. It would be desirable to have at least two of each sort, with the animals in them, or if the shells are too large, the animals alone, preserved in bottles with a strong solution of salt and water or weak spirits. In crossing the Trades, I took a quart bottle full of small animals preserved in weak spirits, collected

from the masses of floating sea-weed, which twelve months afterwards, on my return to Europe, afforded much gratification to several naturalists, amongst whom I divided them. If a large tub could be procured and the bottom covered with three or four inches of sea sand, then nearly filled with sea water and a coarse cloth tied round the top, so that the air might be admitted through the interstices of the cloth, many animals with their shells might be preserved alive during a short voyage, and afford an opportunity of examining their wonderful structure and habits. I will postpone until my next communication a few remarks on collecting land and fossil shells.

J. E. T.

HORTICULTURE NEAR BOSTON.

SINCE our last notice on this subject we have had the pleasure of passing through the various conservatories in the grounds of Col. T. H. Perkins of Brookline.

How beautiful and refreshing to the eye during the dreary winter is the Hemlock Spruce (*Abies canadensis*) feathered to the very ground with its slender branches of dense yet graceful foliage! How pleasing its contrast with the silver fir (*Abies balsamifera*)! both in perfection here. The hemlock spruce planted singly on an extensive lawn is a study for an artist, and mingled with other evergreens of the coniferous tribe in a deep belt at some distance from the mansion would afford a considerable protection against the northern blast, as well as soften and enliven the sombre effect of the darker surrounding masses. Materials for embellishing the face of this country at all seasons of the year by judicious plantations, are indeed strikingly abundant.

In the extensive central glass structure of the range which is devoted entirely to flowers, we were delighted to see the plants in such perfect health and order; the Camellias, always the most showy and attractive at this season, were in great beauty and variety; some of the double white appeared the largest we ever remember; still with due deference to this charming tribe, we were more interested with the flowers of *Enkianthus quinqueflora*, a rare plant from China of the *Erica* (heath) family: imagine clusters of pinkish



white pendulous flowers in this form, *n* the swelling nectaries of a most brilliant lake color, so transparent that the liquid honey in the interior cell may be easily discerned, *p* the summit of the pistil, which although small is of the brightest and clearest emerald green, a perfect gem, defying the talent of the painter; the anthers concealed by the natural position of the flower, are exceedingly curious, dry and chaffy, a distinctive char-

acter of the *Ericaceae*, and aristate (bearded or awned) with beautiful symmetry.

Mr John Bellenden Ker in a note attached to a splendid drawing of this plant in the East India Company's collection in London, informs us, that it is indigenous in some parts of the province of Canton where it is called Tsiau-Tsung, and is held in a kind of veneration by the people, the flowers being considered an acceptable offering to their deities; accordingly at the Chinese new year, which occurs about the season of blossoming, they decorate the interior of their temples with large flowering branches of this delightful shrub.

Sparmannia Africana, an old but still a deserving favorite of the European greenhouse, was there in all its beauty, presenting clusters of snowy white flowers, with numerous stamens of dark rich crimson thickly interspersed with the very singular bright yellow filamentous knobbed nectaries. This plant was introduced into England in 1790 from Africa by Mr Masson and named in honor of the zealous Andreas Sparmann, who travelled in China, and in the interior of Africa as early as 1775, when the dangers and difficulties were infinitely more appalling than at present, and who eagerly accepted the offer of the celebrated Captain Cook to accompany him in one of his circumnavigations, actuated solely by his ardent love of natural history. Sparmann was afterwards chosen president of the Swedish Academy of Sciences at Stockholm where he died in 1820. No other variety of this plant has yet been discovered.

Strelitzia Augusta is however the rarest plant in this collection; it is large and in perfect health, but does not yet exhibit signs of blossom. We have repeatedly seen *S. regina* in flower, and several times *S. juncea*, the orange and blue colors of which latter are considerably darker and more brilliant than those of the former; of *Strelitzia Augusta* we have never seen either plant or flower in Europe, nor has a drawing of it yet been given in any botanical work except in Ker's

Strelitzia Icones, which is a collection of colored plates of this genus alone, and is rarely to be met with; from its appearance here a splendid bloom may be expected, and we trust the excellent and attentive head of this establishment, Mr Cowan, will have permission to inform us should one come to perfection.

Time would not permit us to notice as we could have wished numerous other rare and beautiful specimens of plants which flourish in this charming assemblage.

The trees in the Peachery occupying the right wing of the building appeared to us trained in the perfection of the art, the bark clean and bright, the buds in a healthy state — fearful of admitting the frosty air into the Vinery we did not enter, but Mr Cowan informed us that the fruit had set and was already of some size. Coiling the vine in pots was in active progress.

We cannot quit this subject without expressing our delight at seeing wealth flow into this channel; after the gratification of assisting our fellow creatures, the gratification of our own taste becomes most agreeable to us, and we sincerely believe this taste for flowers is productive of great happiness: — a splendid palace may please the eye, but the impression is always the same, while the beautiful and periodically renewed forms of vegetable life, are infinitely varied and ever exciting by their almost inexhaustible novelty. The permission to visit and explore these temples of Flora is to us personally a great treat, for however we may be pleased with descriptions and drawings, or delighted with dried specimens from the Tropics, they sink into insignificance compared with the living plants or flowers.

J. E. T.

MASSACHUSETTS HORTICULTURAL SOCIETY.

THE season has not yet permitted any exhibitions or proceedings of interest to the public, if we except a splendid Bouquet displayed at the rooms of the Society on Saturday, 14th February, by Messrs Winship, from their establishment at Brighton. It consisted of *Clerodendron fragrans*, *Rivina humilis*, *Diosma alba*, *Arctotis aureola*, *Metrosideros lanceolata*, *Justicia cærulea*, *Bletia hyacinthina*, *Alonsoa acutifolia*, *Iris chinensis*, *Calla Ethiopica*, *Heliotropium grandiflorum* and *peruvianum*, *Pelargonium ardens* and *comptum*, *Pittosporum album*, with *Primula prænitens* in variety, *Bellis*, (daisy) new French tea and

other roses; and also one displayed on the 21st of the same month by Mr Thomas Mason, of Charlestown Vineyard, containing *Pæonia moutan*, variety *Banksii*, *Azalea indica* and *purpurea*, *Iris chinensis*, *Illicium floridanum*, *Camellia pompone*, *Correa alba*, *Gnaphalium glomeratum*, *Cyclamen persicum* and *coum*, *Verbena melindres*, *Salvia fulgens*, *Polyanthus*, *Viburnum tinus*, *Primula*, *Geranium*, *Lavandula spica*, *Cineraris cruenta*, stocks, roses, &c.

Mr Robert Manning of Salem also sent a basket of the Danvers winter sweet apple in perfect preservation.

We can only augur well of a Society which induces such delightful and creditable exhibitions after a winter of unexampled severity, and doubt not it will take a decided rank among similar societies in the United States.

NOTICES OF FOREIGN PUBLICATIONS.

LOUDON'S Gardener's Magazine for January is an extremely interesting number. The first article is a brief account of Mr Colley's botanical researches in Guiana, the country beyond Demerara, by Mr Isaac Bateman of Cheshire, who sent him out for that purpose. His collection was rich in Orchideous plants, above sixty of which he succeeded in bringing home alive; one third of these are supposed to be new; the *Amaryllis* tribe he found rare. By a singular coincidence he met with an Indian who had accompanied the celebrated naturalist, Mr Waterton, and who was with him during the never-to-be-forgotten conflict with the cayman (alligator).

There is another article of much interest, on a successful mode of bringing tropical plants into a flowering state, by reducing them to a single stem, rubbing off all the lateral buds; a few are left near the top for cuttings; as soon as these have struck and are growing, the same plan is adopted, throwing away the parent plant; this process is pursued until flower buds appear; the laterals are then left and will also produce flowers. This is founded on the system of increasing the length or height of plants, and has succeeded with many which have resisted every other attempt, and with one which even in its native country, Madagascar, rarely produces flowers.

Copious extracts, containing descriptions of apples and pears, are made from the *New American Orchardist*, by Mr Kenrick of Newton.

The fruits named are all in course of trial in the London Horticultural Society's Garden at Chiswick. We have no doubt they will fully maintain the character Mr Kenrick has given of them, and the results will be made known in Mr Loudon's work. A general list of the most preferable sorts of fruits and of vegetables is given. Among the latter we perceive the Kentucky Celery mentioned as one of the best. In our next number we shall give a list of them.

A new botanic garden is in contemplation near London, for the purpose of containing all the indigenous plants of Great Britain. We trust many years will not elapse ere such a garden for American plants will be formed in this vicinity. We can hardly imagine any establishment which would create greater interest, particularly if combined with a few acres of fruit trees and vegetables, thus furnishing, altogether, a school where boys might serve a regular apprenticeship, and become practical and experienced gardeners, a class of men which we hope and think will be more and more in request in this country.

There are also many entertaining notices of remarkably fine trees and shrubs. Of one we extract a portion.

Brugmansia suaveolens (formerly called *datura arborea*). Seventeen feet high, fortyfive feet in circumference, trunk at the surface of the earth eighteen inches round; it had at that time 600 flowers fully expanded, and a great many unexpanded; these flowers averaged one foot in length, and eight inches diameter. Their beauty and fragrance were beyond description; the plant occupied the centre of a large conservatory. It is a native of Peru, and somewhat resembles the common Thorn Apple or Apple of Peru, only the flowers are white and much larger, and it is more of a tree (arborescent); we have seen it once or twice exhibited at the rooms of the Horticultural Society in Boston, and know it to be in several greenhouses we have visited.

Eschsholtzia Californica. In the Annals of Philosophy there is a letter calling the attention of the medical and philosophical reader to the juice which exudes from this plant on breaking the stem; it is yellow, smells exactly like muriatic acid, and possesses in some degree the property of taking stains out of linens. It is one of the Papaveraceæ, the same family as the Poppy and the common Celandine, a yellow flower which grows under almost every stone fence, and has a yellow juice when broken.

Curtis's Botanical Magazine contains figures and descriptions of the following plants:

Habenaria gigantea, a large, handsome orchideous stove plant.

Microtis parvifolia and *media*, two small, green, orchideous plants, of little interest except to the scientific botanist.

Tropæolum majus, variety *atrosanguinea*, dark red colored nasturtium, a new and very beautiful variety. This we grew last summer, for the first time in this country. It is impossible for a colored figure to give an idea of its brilliancy; it does not seed freely, but may, like many other annuals, be preserved a second year by cuttings, taken off and stuck in July and August, and kept in the greenhouse. This treatment will, however, in all probability, make it less inclined to bear seed. There are several parcels of seed arrived here, therefore we hope to see it become general. It belongs to *Octandria monogynia* (eight stamens, one pistil) of Linnæus; *Tropæoleæ*, Natural arrangement; *Anemone vitifolia*, vine leaved anemone, *Polyandria polygynia* (many stamens originating below the seed vessel, and many pistils) of Linnæus; *Ranunculaceæ*, Natural arrangement, from the Nepal and Himalaya Mountains, according to Dr Wallich a most ornamental plant, growing in shady, moist situations; a pretty, delicate white flower.

Calandrinia speciosa, also *Polyandria polygynia*, *Portulacææ*, Natural arrangement, same tribe as the common yellow weed, purslane, but much larger and shrubby; of a fine rose color, more like a small single pæony.

Anagallis monelli, variety *Willmoreana*, said to be raised by seed from Madeira. We do not, however, believe there is the slightest difference between this and the beautiful blue *Anagallis monelli* we have frequently seen in greenhouses here, the color of which, when once seen, it is difficult to forget. It belongs to the natural order *Primulacææ* (primrose the type,) *Pentandria monogynia* (five stamens, one pistil) Linnæus.

MISCELLANEOUS ARTICLES.

COLLECTED BY T. G. F.

ON THE USE OF CAMPHOR IN HORTICULTURE. — Camphor is dissolved in alcohol until the latter is saturated — the alcohol is then put into soft water, in the proportion of two drops to half an ounce. Withered or apparently dead plants, put into this liquid and allowed

to remain there from two to four hours will revive if they were not completely dead before put in. — *M. Drosto, in Trans. of Prussian Gard. Soc.*

TO DESTROY THE GRUB AT THE ROOT OF CAULIFLOWERS, CABBAGES, &c. — W. Mathers, gardener to Lady Palmer, near Leicester, Eng. states in Loudon's Magazine, in substance, that a small handful of soot, applied to the stems of cauliflowers and cabbages, in case of the grub at the root, earthing up the plants, was an effectual remedy against the depredations of the insects. Sea water, a weak solution of salt and water, lime water and soap suds have also been recommended for the same purpose.

NEW PLAN OF STICKING PEAS. — Procure a number of slim poles, about five feet long, and drive them into the ground at the distance of three or four yards. Pass a small line along the poles, taking a turn on each, within three inches of the ground; raise the next turn three inches, and so on in succession, till you have attained the common height to which peas rise. The tendrils of the peas seize and twist round these lines, and they are supported in a more attractive, and a more profitable manner than they are by the common stakes. When spread regularly along the lines they have a fine circulation of air, more advantage from sunshine, and pods can be pulled at all times without injuring the plants, and as the sparrows have no twigs to light on, the portion of the crop which they destroy and devour is saved. This mode is so cheap simple, and possesses so many advantages that it is likely to be soon generally adopted. — *Scotsman.*

FRUIT TREES might and ought to be planted by walls, hedges, on side-hills and by the sides of high-ways and by-ways, in lands too stony to till, and should occupy the places of useless shrubs and forest trees of little value, such as white birch, soft maples, &c. Millions of such trees might adorn places which are now barren of all useful vegetation, mere blanks or deformities, which give neither pleasure to the eye of the traveller, nor profit to the owner of the soil. It is remarked in "*Cobbett's Ride in France*" that "from Talmas to Saint Just," a distance of more than twenty leagues, apples and pears have been employed in this capacity, (to line the road side) for the whole distance.

A NEW METHOD OF OBTAINING EARLY PEAS. — Mr David Bishop in Loudon's Magazine makes the following remarks on this subject. "The method of rearing peas in pots and boxes, in hot-beds, and hot-houses, and afterwards transplanting them out in the open ground,

is a common practice with gardeners, and often succeeds very well; particularly if they are not too long in transplanting them; but I would recommend a method not so well known, as far preferable to that of pots or boxes, particularly when they are to be raised in a hot-bed. This consists in having a quantity of turf cut into pieces, of about nine or ten inches long, and three or four broad, which are placed in a regular manner over the surface of the bed, grass side downwards, and a row of peas is sown upon each row of turf, and afterwards covered with soil; when they are fit for transplanting, no more is required, than to lift out the turf piece by piece with the peas growing upon it, and place them where they are to produce their crop. By this measure the roots receive no injury; nor do the plants sustain the least check in transplanting. This method may be practised with similar success in the raising of potatoes, beans, &c."

EXTRAORDINARY USE OF THE NETTLE. — In a weekly newspaper of the Bavarian Agricultural Society, the nettle is said to have the following properties: 1. Eaten in salad it cures consumption; 2. It fattens horned cattle, whether eaten green or dried; 3. Experience has shown that it not only fattens calves but improves their breed; 4. It is an antidote to most maladies; 5. Sheep which eat it, bring forth healthy vigorous lambs; 6. It promotes the laying of eggs in hens; 7. It improves the fat of pigs; 8. The seeds, mixed with oats are excellent for horses; 9. It grows all the year round, even in the coldest weather, (in that climate); 10. The fibres of the stem make an excellent hemp.

The conductor of Loudon's Magazine observes, "The Bavarian oracle might have added that few plants force better or more rapidly, and that the tender shoots so produced, make a delicate and high flavored pot herb, resembling the points of the shoots of pompion.

"It is certain the nettle is much valued in Holland, where its shoots are used as a pot herb; its roots for dying yellow; where the horse dealers give the seeds to horses, to make them brisk and give them a fine skin; and where considerable portions of fields are planted with it, and mown five or six times a year as green food."

Some interesting experiments have been made by M. Zannettini in Italy, from which it appears that the flowers and seeds of the common nettle may with efficacy be substituted for Peruvian bark, in all febrile affections, especially in Tertian and Quartern agues. The native vegetable operates more speedily than the foreign bark; and, in large doses induces a lethargic sleep; the portion to be given ought

never to exceed one drachm, and should be administered in wine two or three times in the course of twentyfour hours. The same cautions that are necessary in the use of Peruvian bark are likewise to be observed in taking the seeds and the flowers of the nettle. Lastly M. Zannettini recommends a slight infusion of the latter, in wine, as an excellent preservative for those who reside in marshy and unwholesome situations.

Stearn's American Herbal observes, that "the juice of the nettle snuffed up the nose stops its bleeding; and a leaf put upon the tongue, and pressed against the roof of the mouth is good for the same disorder.

"Stinging the parts affected with nettles, helps the palsy, lethargy, and febrile stupidity; for the last complaint, the leaves may be applied to the arms, legs and thighs."

On the whole, from the above, and other testimony in favor of the common nettle, we are inclined to believe that this plant, generally thought to be very useless, troublesome and insignificant may be worth cultivation. At any rate, it cannot be amiss for us to be acquainted with its properties, and to avail ourselves of such as are useful, whether we do or do not conclude to domesticate it.

WINTER MANAGEMENT OF BEES. — A writer for Loudon's Magazine states that "In a severe winter bees are for the most part asleep, and do not eat much of their honey; in a mild winter they are in motion, and eating, and have not an opportunity of renovating their stores from flowers. Keeping these facts in view, the owner of the bees put them to rest in the month of October, by burying them in a peat stack; and did not restore them till the willows were in blossom in the following April. The success was most complete, and the practice worthy of imitation in other districts, by placing the hives in cold dark cellars, or in ice-houses.

YEAST AS A MANURE. — An English writer observes that "It is not generally known that yeast is one of the most powerful manures in existence. Some experiments have been tried with grass plats and different culinary vegetables, from which it appears that a very small quantity of yeast, after it has become putrid and useless to the brewer or baker, will effect wonders when mixed with water and applied to plants as a liquid manure. The only danger seems to be in making it too rich."

SLOPING ROWS FOR PLANTS.—In some remarks on transactions of the Horticultural Society of London, Mr Loudon observes, "As an

excellent combination for the growth of vegetables in the open garden, we would suggest the formation of beds in the direction of east and west, the surface of the bed sloping to the south, the steeper the better; on these beds sow or plant herbaceous vegetables and fruits, if in rows let them be from north to south, or across the beds."

CHARCOAL DUST, AS A TOP DRESSING FOR ONIONS.—In a letter on this subject from Mr Thomas Smith to the Secretary of the London Horticultural Society, it is remarked in substance that charcoal dust, (which in his experiment was the refuse of a charcoal pit,) was spread upon the ground about half an inch thick, before the sowing of the seed, and merely scuffled in with the point of the spade, so as to mix the top soil and charcoal dust together. Six years' experience have convinced Mr Smith that it is a remedy for the grub, and mouldiness in onions; and he has repeatedly proved, that it effectually prevents the clubbing in the roots of cabbages and cauliflowers.

ACCELERATING CULINARY VEGETABLES.—The inhabitants in the neighborhood of Louvain, even to the humblest cottager, are remarkable for the culture of their gardens. Many of them sow in winter, in pots, or boxes, and preserve in their chambers, peas, beans, kidney beans, potatoes, &c.; and when the weather is sufficiently mild in spring they transplant them into the open garden, carefully covering them every evening with straw, or haulm of any kind to protect them from accidental frosts. The consequence is crops in maturity nearly a month before those sown in the open ground in the usual manner.—*Bulletin Univ.*

EMPLOYMENT OF LUNATICS IN AGRICULTURE.—Brussels, Antwerp, and a number of surrounding cities, instead of confining their lunatics to hospitals, pension them out among the farmers, where all of them improve in health, some of them make tolerable workmen, and a few recover entirely.—*Jour. d'Agr. des Pays Bas.*

GARDENER'S WORK FOR MARCH.

EARLY Peas may be sown or planted as soon as the ground is sufficiently thawed. Be sure to plant an early sort, if you wish for an early crop, and after the ground has acquired a temperature favorable to vegetation, you will do well to sow once a fortnight from this time to about the first of July. One pint of the small early kinds will sow a row of twenty yards; for the larger sorts, or main crops the same quantity will sow a row of thirtythree yards. Drills for the small sorts one inch and an half deep; two feet and an half or three

feet apart, and along the drill about three peas in the space of an inch. A loose and warm soil, with a little decomposed vegetable matter, and but little or no stable manure are best for peas. Lettuce may be sowed as soon as practicable between vacant rows, intended for other plants, or it may be grown by itself in beds. A quarter of an ounce is seed enough for a bed four feet by ten. As soon as the weather is mild enough you may transplant such cabbage plants as were sown in autumn, or in hot beds. Also sow seeds of every kind of cabbage, which you intend to cultivate. If you wish to produce early cabbages, you may cut sprouts from stumps, or stalks, preserved in a cellar, through the winter, as soon as such sprouts have grown to a length fit for cutting. Take with each a small slice of the stalk, about two inches long; and as soon as the season will permit plant them in a garden, and with the usual care they will give you early cabbages. You may also select from your cellar the best cabbages with heads, and set them in some proper place to stand for seed. Attend to your beds of asparagus, dress the old beds, and make new ones if wanted. If the seeds are sown to transplant, you will need about a quart for a bed four and an half feet wide by six feet length. If sown to remain, for a bed four and a half feet wide by thirty feet in length, one pint is about the proper quantity. Sow the garden cress as follows: Having chosen a fine mellow soil to receive the seed, dig the surface, rake it, and put in the seed, very thickly, in small flat, shallow drills, four, five or six inches asunder, and cover very lightly. Mustard, also, whether white or black may now or soon be sown either for seed or for salad. Sow moderately thick, either in drills from six to twelve inches asunder, or broad cast, and rake or harrow in the seed. Sow parsnips, "for a bed five feet by twenty, the plants to remain thinned to eight inches distance, half an ounce of seed is the usual proportion." Carrots may also be sown towards the end of the month, thin in drills from eight to ten inches apart.

We shall feel obliged if our subscribers would correct the following errata in our last number.

- Page 42 — line 26, for *pen* read *open*.
 " 46 — " 16, for ; read ,
 " 47 — " 16, for *farmer* read *former*.
 " 64 — " 28, for *Panama* read *Canada*.
 " 29 — for *Euphorbium* read *Euphorbia*, throughout.
 " 70 — line 4, for *the almost* read *this almost*.
 " 75 — " 19, for *tender annual* read *tender perennial*.





THE
HORTICULTURAL REGISTER

AND
GARDENER'S MAGAZINE.

APRIL 1, 1835.

GLADIOLUS CARDINALIS.

THE drawing on the other side, of this splendid *Gladiolus*, was taken from a plant raised by the writer ; it had a succession of nine flowers from the spike, of which that in the figure was largest, as is usual with most first flowers ; the figure is about two thirds the natural size. It belongs to the family of *Iris*, called *Irideæ* in the natural arrangement in Botany, and to *Triandria monogynia* (three stamens and one pistil,) in the Linnæan system ; this character is very evident in the drawing, although the single pistil is divided at the summit into three parts called styles, being as it is termed trifid.

This is one of the numerous and beautiful bulbous plants which are natives of that part of Africa around the Cape of Good Hope. The soil in which it thrives most is a mixture, about two thirds sandy loam and one third well decayed leaf mould or peat earth ; this should not be sifted fine but chopped with the trowel, and if possible contain rotted fibres of the roots of woody plants which prevent it from concreting into a hard solid mass by constant watering, and allow the roots of the bulb to push easily through every part, and draw as much sustenance as possible. Being originally from a warm climate, they require to be planted in pots, and brought forward in the green-house. The pots should be of large size, well drained by about an inch depth of small broken potsherds placed at the bottom, so that all superfluous

water may readily run off, which would otherwise decay the bulb. By keeping it in a dry cool place, however, I do not doubt that the vegetation might be checked until the beginning or middle of May; then even those who do not possess green-houses might enjoy the pleasure of cultivating this splendid tribe, protecting them in the parlor until all chance of frost was over, then plunging the pots into the open border, or planting them at once in the border six inches deep, out of the reach of early frost, as is done with *Tigridia pavonia*, the Tiger flower. The farther success in treating these plants is founded on their habits in their native country, where they remain for several months exposed, in sandy beds, to the heat of an almost vertical sun, which ripens and concentrates the juices of the bulbs, so that when the rainy season arrives they quickly shoot up their spikes of beautiful flowers; therefore when beginning to grow they should be plentifully supplied with water, which must be continued until the flower is past its prime and the leaves begin to turn yellow; the pot should then be taken up, and exposed as much as possible to the heat of the sun, protecting the plants carefully against rains and moisture. Previous to probability of frost, the bulbs may be taken out of the earth and placed on a warm shelf of the green-house or in the cellar, where they are secure from freezing. Peat earth and leaf mould, when in actual contact with the lower part of the bulb where the roots originate, are sometimes apt to produce decay. I have therefore always been in the habit of putting half an inch of sand in the hole where it is planted to prevent this consequence.

It would be better, as before mentioned, to plant five or six inches deep, but this is impossible in pots already made shallow enough by the drainage; therefore if the crown is covered one quarter to half an inch, it will be sufficient.

Outside the south front of the celebrated green-house belonging to Messrs Loddiges, near London, which is the largest and loftiest known, being seventy feet high, there is a narrow border devoted to tender Cape bulbs, such as *Ixiæ gladiolus*, *Antholyza*, &c. They are planted deep enough to be out of reach of the frost, are protected during the winter with litter and mats, and they increase and flourish amazingly. At Messrs Colvilles — also celebrated nurserymen, near London — they are grown in pots protected by brick pits, glazed and well covered against frost.

There are a great many varieties of the *Gladiolus*, both found native and produced by hybridizing. In this latter process the Hon.

and Rev. Mr Herbert of Spofforth, in England, has been eminently successful. *Gladiolus blandus* is white, with a very light roscate tint; I cultivated a beautiful hybrid between this and *cardinalis*, then called *Blandus cardinalis*, but which has since received the appellation of *G. spofforthianus*. *G. colvillii* is extremely handsome. *G. hastatus* (bearing a spear) is delicate white, with a most elegant bluish mark, somewhat resembling the head of a spear, inclosing the white space observed in *cardinalis*. In cultivating this and all other bulbous plants, the fact must never be lost sight of, that the bulb is, during the summer, a species of underground continuation of the leaf, while in the winter it is analogous to the bud of a plant; therefore any injury to the leaves, during their growth in summer and autumn, is an injury to the bulb; when these have performed their functions of preparing and elaborating the juices for this subterranean bud or bulb, they die away naturally; leaves of bulbous plants should therefore never be trimmed or cut off, with a view of making them look more sightly, unless they have turned brown. On the other hand, forming and perfecting the seed withdraws considerable nourishment from the bulb; it is, therefore, rather a benefit than an injury to cut the flower and prevent the seed from coming to maturity; the juices are then diverted from this operation to that of increasing and improving the bulb.

As there is a figure which will assist in elucidation of the subject, it seems opportune to appropriate part of this article in explaining to the uninitiated the process of hybridizing and impregnating the seed.

From the centre of the flower (corolla) three filaments may be observed, with curved tops, which are called stamens; the tops are called anthers, and are cells containing the pollen (*pollen* is the Latin word for small dust;) as soon as this is ripe the cells open and eject it; of course, as nature intended, part falls on the styles or the summits of the other single filament, called pistil, which in the instance of this flower is trifid.

The filament which forms the pistil stands on the top of the seed vessel, and may be imagined a tube filled with smaller tubes or vessels through which the pollen shed on the styles communicates with and impregnates the seeds, in a manner as yet but little understood; these then begin to swell, perfect, and finally ripen. I trust this explanation will enable any one to understand that when the pollen, for instance of the Scarlet *Gladiolus* is placed on the pistil of a white one, it will of course communicate a portion of its general nature,

as color, shape, &c. to the seed it impregnates; hence this seed will produce a flower containing qualities belonging to both; this is called a hybrid. Thus a hybrid between the red and white *Camellia* would probably be striped red and white. These hybrids have often very valuable qualities besides their beauty; they are frequently more hardy, and very frequently more prolific in flowers than the originals, though in some cases they do not produce seeds. I am hardly acquainted with the method employed by the most celebrated hybridizers, and should be very happy to receive communications and instructions on this subject. My way has been, when the flower is in the state of the bud in the drawing, to open it very carefully, and then extract the anthers with a pair of tweezers or pincers, before they can have opened and shed their pollen on the pistil, which will then be found with the trifid divisions closed. As soon as the flower, thus deprived of its anthers, has opened and the styles have separated as in the figure, take the ripened pollen from the anthers of the flower you wish to mix or impregnate with, either with a small piece of cotton, a camel's hair pencil, or the fine point of a penknife, and shed it on the styles so that it remains sticking there; this will impregnate the seed.

It is now, however, necessary to prevent this flower from receiving, by means of insects or the air, pollen from any other flowers of the same species, either of its own spike or from others; for this purpose I have generally tied a piece of very fine gauze or India muslin over the flower, so as entirely to protect it from farther impregnation.

When the petals are fading it will be perceived by the swelling of the seed vessel whether the purpose in view has answered. Should it have been successful I remove the muslin, and generally allow some of the other flowers of the spike to proceed in growing, to draw up the juices from the earth, but remove their seed vessels as they appear, in order to throw the whole strength of the plant into the hybridized seed; observing that the first and second flowers of a spike, if perfect, are more likely to succeed in this operation than those later in bloom.

It is probable that many varieties of the same flower now considered a species, have been thus produced naturally; certainly many very beautiful additions to the flower garden have been thus artificially brought into being. It may be readily imagined how amusing this employment is to the man of leisure, and to the gardener it has been for some years a source of large profits; the *Pelargonium*

(*Geranium*) *daveyanum*, now quite common here, was produced in this way, and I believe the owner did not dispose of any until he had some hundreds ready, which he sold at a guinea each plant.

Taking again advantage of the drawing, I would point out to beginners in botany a distinguishing mark of this species, that the flowers on the spike are what is termed secund or unilateral, that is on one side only of the flower stem.

The *Gladiolus* is propagated by seed or by offsets of the bulbs. Large ones may be taken out of the earth and kept in any dry place; but seedlings and small offsets should be left in the pots of earth if possible, being more apt to dry up if removed; they must, however, be kept out of the reach of frost, except *Byzantinus*, *Communis*, and *roseus*, which are tolerably hardy.

I fear *G. cardinalis* is hardly yet to be met with in the seed stores in Boston, but I trust it will soon become as much cultivated as its beauty deserves. In the meantime it may easily be procured from Holland or England, where it is not a dear root. J. E. T.

[For the Horticultural Register.]

ON THE CULTIVATION OF CYPRESS VINE AND OTHER TENDER ANNUALS.

THERE are many beautiful annuals, the seeds of which are every year worse than lost for want of a few plain instructions, as to the time, manner of sowing, &c. One of the most pleasing, when properly managed, is *Ipomæa quamoclit*, (*Cypress Vine*), and yet it is doubtful whether one out of twenty who attempt to cultivate it succeed. If sown with other seeds about the first of May, as is customary with many who bestow but little time upon the flower garden, the seeds rot in the ground, or if they vegetate, do not appear much before July, and it hardly commences flowering before it is destroyed by the autumnal frost.

The seed should not be sown in the open ground until the last week in May; previous to which boiling water should be poured upon it; this facilitates the vegetation, causing it to appear in about a week if the weather is warm. It will not grow without heat. In this way it may give tolerable satisfaction to those who have not seen it growing in perfection. The only way the splendor of the plant can be de-

veloped in this climate, is by artificial heat. The same may be said of nearly all the tender annuals. The expense of a frame and lights for a hot bed is small, and once procured lasts for years. The manure that is necessary is not injured any more than it is by the fermentation which many farmers suffer to take place before applying it to the ground. Every man that has a garden, should have a hot bed, a part of which should be devoted to flowers, if there is any taste for them in his family; if not, they are to be pitied. So many directions for making and managing hot beds have been published, that I think it inexpedient to say a word upon the subject, but proceed to state how the Cypress Vine may be raised in them to give ample satisfaction. The seed should be sown about the first of April, in the smallest sized pots, five or six seeds in each, and plunged into the bed before the violent heat has subsided. As soon as the plants appear, which will be in three or four days, according to the heat of the bed, air must be given, or the tender seedlings will be destroyed. If the heat of the bed has been kept up, by the last of the month they will have made considerable progress, the pots will be filled with roots, and it will be necessary to shift them into larger pots. During the month of May give plenty of air in fine weather, but nearly close the lights when cold and chilly, as the heat in the bed will have declined; at night, if the weather is as severe as some we had last May, cover the glass with mats. Only three plants should be left in each pot. It will begin to flower by the first of June or sooner, but be not in haste to get them out of the frame; it is a very tender plant. The sashes should now be taken off during the day, putting them on again at night, if cold. By the 10th of June, and not before, the plants may be turned into the ground very carefully, not disturbing the roots. The ground should be made rich with well rotted manure; the plants should be placed at the distance of one foot, or a foot and a half if the object is to cover a wall or trellis. I have covered a trellis by the middle of August, 25 feet long and 5 high, with its elegant feathery foliage, so as to form a complete screen. The flowers, like those of the Morning Glory, appear in the morning and perish before noon; they are of a deep crimson color, and contrast finely with the rich green of the leaves. There is another variety with white flowers. It should be sheltered from the northerly winds by a fence, trees or buildings. An elegant cone may be made by setting a straight pole substantially into the ground eight feet high from the surface; describe a circle round it whose diameter shall be

three feet ; let about ten pots be turned into this circle ; drive down a stake by the side of each nearly to the surface, to which tie a strong twine that may be stained or painted green ; let it be carried to the top of the pole and fastened there, then brought down to the next stake, and so on until the whole is completed. With a little assistance the vines will climb the strings, and before the first of September it will be at the top of the pole, making a splendid show, more than paying for all the trouble. It may be trained over an arch, or any other way fancy may direct.

Canna indica (Shot plant) may be planted in great heat like the Cypress. This is desirable not only for the beauty of its spikes of scarlet flowers, but also for its elegant foliage, and particularly to the botanist as it belongs to the small class *Monandria* (one stamen) which in this region furnishes but few examples. There are many species in large collections, all handsome. It becomes a large plant before autumn, four or five feet high, with deep green leaves, two feet long and six inches in width ; perfecting seed which is round, black, and hard, having the appearance of large shot. It belongs to the natural order *Canneæ*, mostly tropical plants.

Celosia cristata (Cockscomb) may be seen in most gardens ; very pretty, to be sure, but a very different thing from that which has been forwarded in hot beds. The following account may be found in Loudon's *Encyclopædia of Gardening* which I insert to give some idea of what may be done by artificial means. " Knight, in October, 1820, sent to the Horticultural Society a Cockscomb, the flower of which measured eighteen inches in width and seven in height, from the top of the stalk ; it was thick and full, and of a most intense purple red. To produce this, the great object was to retard the protrusion of the flower stalk, that it may become of great strength. 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 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 mass so hollow that the water might escape and the air enter. The seeds were sown in the spring rather late, and the plants put first into pots of four inches diameter, and then transplanted to others a foot in diameter ; the object being not to compress the roots, as that has a tendency to accelerate the flowering of all vegetables. The plants were placed within a few inches of the glass, in a heat of from 70° to

100°; they were watered with pigeon dung water, and due attention paid to remove the side branches when very young, so as to produce one strong head or flower."

Loudon in his *Encyclopædia of Plants* adds: "Had the shifting from pot to pot been more frequent, it appears probable the size might have been still greater." Not having taken any special pains, I cannot boast of anything like the above, yet many very fine heads of flowers were produced by me the last season, by the following process; the seed was sown the second week in April in a small patch, and when of a suitable size, pricked out in another part of the bed, two or three inches distant from each other; as the plants began to interfere, they were transplanted into another bed at a greater distance, and finally into the open ground the first week in June, carefully moving with the roots a ball of earth; shading for a few days with an empty flower pot, until they had taken fresh root. Afterwards little care was necessary but to remove all laterals, and tying to stakes to prevent their being prostrated by the wind.

The same process will produce fine Balsam plants, (*Impatens balsamina*) if good seed has been sown; if not, all the labor is in vain; the single varieties are not worthy of cultivation. Old seed is considered by some to be the best, as more likely to produce double flowers. The seed should be saved from double flowering plants only; all single flowering ones should be destroyed as soon as they appear. Most plants raised in a hot bed do better to transplant into small pots, and shift to larger as they increase in size. Balsams thus treated, sown the first of April will begin to flower the last of May, and may be turned into the ground in June, without checking their growth in the least. If the soil is rich and a little moist, or supplied with moisture, the plants will attain a monstrous size, and be completely covered with a profusion of flowers all the season. All the full double varieties are beautiful; some produce white and red or purple flowers on the same plant; others are variegated or spotted with various shades of red and purple, which are decidedly the most elegant.

Most of the tender annuals should be sown in the open ground from the tenth to the twentieth of May. *Gomphrena globosa* (Globe amaranth) of which there are two common varieties, the white and purple, and one rather rare; the striped are desirable for their heads of flowers, which if gathered before they are too far advanced, will retain their beauty several years. To have them in perfection the

management should be the same as with the Balsam. The seed is difficult to vegetate in the open ground; soaking in milk 12 hours is recommended; scalding, perhaps, would do better.

A powerful heat in the hot bed will start it quick, and destroy the plant also, unless care is taken. *Gomphrena* is said to be a name applied by the ancients to a plant bearing red and green leaves on the same stem; probably our *Amaranthus tricolor*, which is a well known tender annual of some show. I have had poor success with this for a number of years past; the plants have been attacked by a small worm at the root which has caused them to wither and die. *Xeranthemum lucidum* or *Elichrysum bracteatum* (Golden Immortal flower,) is much admired for the brilliancy of its shining golden flowers, even in their dried state, and are therefore much prized, as ornaments for vases, &c. It is more hardy than the preceding, but is much more luxuriant when raised in a hot bed than in the open ground. *Xeranthemum annuum* (Immortal flower) is perfectly hardy, and may be sown in the open ground any time in April or in the fall.

Lancaster Hort. Garden.

JOS. BRECK.

[For the Horticultural Register.]

ON THE CULTURE OF MILK-WEED. — (*ASCLEPIAS SYRIACA*.)

SOME four or five years since, in a conversation with George Manners, Esq. the British Consul for Massachusetts, on the various kinds of edible vegetables, cultivated in our gardens, he observed that, during a recent visit to Canada, he was informed that the young shoots of the Milk-weed were used as a substitute for asparagus, and asked me if I had ever heard of their being cooked in the United States. I replied, that I perfectly recollected, when a boy, my mother often had them gathered from the fields and road-sides, with the dandelion, shepherds' sprouts, nettles, and other plants, which were collected as greens; but that I had never seen the plant thus used elsewhere, or heard it named as a culinary vegetable; but that I certainly would make an experiment in its cultivation, and as to its qualities, as an addition to our garden pot herbs.

Having collected the seed in the autumn, it was sown early in the spring in drills, and covered an inch deep. They came up freely in four or five weeks, and when the plants were two years old, I took up

a portion of the roots, and set them out about eight inches apart, in a trench six inches deep. The ground had been manured and thoroughly dug over, previously to forming the trench. The following spring, when the shoots were four or five inches high, they were cut, tied up in bunches, boiled and served up with melted butter, like asparagus; and they were as tender, and to my taste quite as delicious a vegetable, resembling in flavor the youngest and most delicate string beans.

As the plant is very hardy, exceedingly prolific, easily cultivated, and such a valuable addition to our early vegetables, I consider a bed of it nearly as desirable as one of asparagus.

No better mode of cultivation can be adopted, than that for asparagus, as described by Mr Chandler, in his interesting, instructive, and able article, which appeared in the third number of the *Horticultural Register*, — except the roots of the milk-weed should not be covered more than five or six inches deep.

Mr Chandler is entitled to the gratitude of his fellow citizens for the valuable result of his experiments; and I freely declare that the mode he adopted and recommends, is the very best which I have ever seen published. I can confirm it, by having followed a similar process, but by no means so perfect in all its parts as that which he has so successfully tested. As a practical, intelligent, zealous and enterprising tiller of the earth, he has no superior in this State; and the commendable gentlemen who have established a Farm School on Thomson's Island, could not have made a better selection in a superintendent of the art of cultivation in all its branches.

Asclepias (*Swallow-wort*), is a numerous genus of plants, there being fortytwo species, which have been described by botanists, two of which only are found in Europe, but three in South America, while there are eighteen indigenous to the United States, and the others are divided between the West Indies and Africa. Many of the varieties are cultivated as ornamental plants in England and France, but the following kinds, natives of this country, are considered the most beautiful, besides being more hardy than those of more southern climes; still many of the latter are considered worthy of the green-house.

1. *Muschata*, so called by Bartram, for its strong and agreeable musk scent, is peculiar to the natural meadows of South Carolina, Georgia, and Florida. It is a low plant, of not more than five or six inches in height, with flowers of a pale green color, inclining to yellow.

2. *Venosa* has leaves elegantly variegated with white and crimson veins, and the stems terminate in an umbel of pale flesh-colored flowers.

3. *Pulchra*,—Water-silk-weed—Has nearly erect stems, four or five feet high; umbels very small; flowers crimson purple. Grows on low, wet land, by the side of ponds.

4. *Variegata*,—Variegated. Leaves rough, umbels compact and come out from the side of the stalk; flowers of an herbaceous odor.

5. *Nivea*,—White, or Almond-leaved. Stalks two feet high, and of a dark green. Leaves deep green above, and pale beneath, smooth and rather stiff. Flowers green, with white nectaries.

6. *Incarната*,—Flesh-colored,—Has several upright stalks about two feet high, at the top of which are produced close umbels of purple flowers. Blooms in August.

7. *Decumbens*. The stalks are declining, hairy, a foot and a half high; leaves narrow; umbels compact, at the extremity of the branches; flowers a bright orange color.

8. *Verticillata*. Stalks slender, upright; umbels at the extremity of the stems; leaves in whorls of four, five, and six together; flowers small and of a greenish white color. Found in Roxbury and Dedham; blooms in July.

9. *Tuberosa*,—Butterfly-weed. Root large, fleshy, branching and somewhat fusiform, but it is only by comparison with other species that it can be called tuberous; stems numerous, growing in bunches from the root, hairy and dusky red; flowers numerous, erect, and of a beautiful bright orange color; grows in Woburn and Newton; blooms in August.

10. *Obtusifolia*,—Blunt-leaved. Stems erect, supporting a terminal umbel, at a distance from the leaves, which are opposite, ovate, heart shaped at the base; flowers large, of a greenish white, tinged with red; it is found in Cambridge and Mount Auburn; blooms in July.

11. *Phytoloccoides*,—Poke-leaved. A tall, large flowering species, of a delicate appearance; stem erect, four or five feet high; leaves large; umbels nodding, flowers large, petals green, nectaries white or flesh colored; grows in low grounds; blooms in June.

12. *Purpurescens*,—Dark-flowered. Stem erect; flowers of a dark crimson purple; grows in Cambridge and Newton, but is rare.

13. *Quadrifolia*,—Four-leaved. A delicate species, growing in

dry woods ; stem about a foot high ; flowers flesh colored ; is found in Roxbury and Brookline, and blooms in June.

14. *Viridifolia*, — Green flowered. An inelegant species, with small greenish umbels ; is found in Leicester ; blooms in July.

For the description of the third and sixth preceding species, I am indebted to Dr Bigelow's excellent work, on the plants in the environs of Boston. There is a beautiful colored engraving of No. 9, and a more particular account of it, in his other most able and splendid publication, called Medical Botany.

15. *Amoena*, — Oval-leaved. Stalks from a foot and a half to three feet high ; at each joint are two large leaves, which are blunt, thickish, stiff, smooth, with purple nerves ; umbels rise from the top of the stalk and some of the upper axils ; flowers of a bright purple color.

16. *Rubra*, — Red-flowered. Stem upright ; umbels many, from the same common peduncle ; a native of Virginia.

17. *Parviflora*, — Small-flowered. A native of South Carolina and Florida.

18. *Syriaca*, — Milk-weed, or Silk-weed. This species abounds all over our country, and for the many useful purposes to which it may be applied, is deserving of especial attention. The root is perennial, and in April or May throws out, like asparagus and hops, a great number of shoots ; the stems rise to six or seven feet in height in a rich soil. When the leaves or stems are broken off, a milky substance, of a viscous consistence, exudes, from whence the plant derives one of its most general trivial names. The flowers appear in July, and are in umbels of from twelve to sixteen on one stem, each containing thirty or forty single flowers, which adhere to the umbel by a long slender stalk, and has a sweetish odor. Each bunch of flowers is succeeded by three, four, and sometimes ten long, flat and rough pods, which enclose numerous round, flat, thin, yellowish brown seeds, wrapped up in a beautiful shining white and soft kind of silk, which constitutes their wings, and by means of which they are conveyed with ease to a great distance by the wind ; it has also given rise to the other trivial name, by which the plant is known in some parts of the country.

The great utility of the *Syriaca* or Milk-weed in the arts, has not been understood, but since the middle of the last century, although it was introduced into Europe at a much earlier period.

A manufactory of articles from the silk was established in Paris in

1760, and it has long been employed at LOUZZANNE, with advantage, as candle-wicks. Mr Schneider of Liegnitz, has been distinguished for the zeal he has evinced, in relation to the cultivation and preparation of this article, and has recommended it in two different pamphlets.

In the application of it to paper making, Mr Schmid of Lunenburg made a variety of very interesting and instructive experiments.

The cultivation of the plant has been found very easy. Mr Schneider began in 1785, with but six plants, and in 1793 he had a plantation of 30,000, which yielded him 800 pounds of silk the first crop, 355 the second, and 600 the third. They were planted in rows about two feet apart, with a sufficient distance between the roots in each row. The silk was separated into two parts, the longer being used for spinning, and the shorter for hat making and beds.

Mr Schmid, who was an ingenious manufacturer of paper, made several experiments with the capsules, or pods, which gave the following results :

1. From the interior white rind of the pods he obtained writing paper, pretty white, of good quality, and similar to the silk paper of the Chinese.

2. From the external green part of the pods, a greenish colored paper was made, which, when sized, was stronger than paper made from rags. It was almost as close in its texture as parchment, and even when unsized did not suffer the ink to pass through it. It was excellent wrapping paper.

3. From the bark of the stems he obtained a paper so like, in everything, to paper made from rags, that the difference could scarcely be distinguished.

The silk when taken from the pods, and being freed from the seeds, is hung up in thin bags in the sun, and when perfectly dry, may be used without any further preparation, instead of feathers, horse hair, wool, or cotton, for cushions, bolsters, pillows, mattresses, and coverlets. From eight to nine pounds is sufficient for a bed, bolster, and two pillows. It is lighter and warmer, when used in forming coverlets or comforters, than cotton or wool, and is nearly equal to eider-down.

For spinning, the staple of the silk is too short, when taken alone, and therefore is combined with flax, wool, cotton, or raw silk.

One third of this silk, with two thirds of cotton, forms a very excellent mixture for gloves, stockings, and other articles of like manufacture. One part of this silk and two of rabbit's fur, forms

hats exceedingly light, soft to the touch, glossy, and which have a great resemblance to beaver hats.

The plant throws around it, long roots with new eyes; these can be cut off in autumn or early in the spring, before the milk flows, and may be divided into pieces from four to six inches long, which may be planted in trenches, four or five inches deep, in an oblique position, with the eyes or buds standing up.

Where the plant grows wild in abundance, a bed for culinary purposes could be easily formed, from the roots in the manner above described, and would be fit for use the second spring; by which two years would be gained over plants raised from the seed.

Besides the above named articles manufactured from the silk, I recollect having seen, at several of the annual exhibitions of the Massachusetts Agricultural Society, in Brighton, tippets, capes, bonnets, and various other articles, which were very beautiful. They were formed by sewing the tufts of silk by the part which is attached to the seed, to linen, cotton, or silk cloth in rows, one overlapping the other, like the shingles on a roof. They had the appearance of the most delicate and rich fur; and so simple was the work that a child could execute it.

For embellishing the outer borders of pleasure grounds, the skirts of roads, avenues, clumps of trees, the sides of groves, and to intermingle with shrubs, all the American varieties may be used with picturesque effect.

On examining some botanical works since writing the above, I found that Parkinson had received the *Syriaca* from this country, and cultivated it in his botanical garden of rare plants, as early as 1629. He called it Virginia Silk, and it was stated that the French Canadians were in the habit of eating the tender shoots as substitutes for asparagus.

It is but little trouble to form in every garden, side by side, beds of dandelions, sea-kale, milk-weed, and asparagus, which, from the last of March, until the green peas appear, will afford a daily and various supply of delicious vegetables. They are all perennial plants, and when once set out, and properly taken care of in autumn and spring, will yield abundant crops, for all time, without removal.

H. A. S. DEARBORN.

Roxbury, March 9th, 1835.

IMPORTANCE OF EXPERIMENTAL HORTICULTURE.

To the Editors of the Horticultural Register.

SIRS: — There are few if any of the sciences in which ingenious and rational theories are more frequently disproved by practice, than in Horticulture and Agriculture. This is a postulate which, I believe, no practical man will attempt to dispute. Even the scientific theories of the immortal Davy have been, in some instances, found erroneous, and the apparently incontrovertible reasoning by which his inferences were maintained, has proved inconsistent with practical results. On the other hand, the prevalence and antiquity of any practice are no certain proofs of its superior excellence. In *Horticulture* and *Agriculture* careful and repeated experiments can alone establish unerring principles.

Experiments are of two kinds — *mediate* and *immediate*. The first consists of those which lead to the other, such as investigations relative to the generation and circulation of sap; the food of particular plants, and the soil best adapted to their growth; the *modus operandi* of manures, &c. &c.; while the object of the second is to obtain an immediate benefit; such are those which enable us to promote or retard the accumulation of sap and render it subservient to particular purposes, to ascertain the crops best suited to different soils, the manner in which such crops can be most profitably produced, the manures and quantity thereof that can be most beneficially expended in their culture, &c. &c.

Experiments cannot prove extensively useful unless their results be generally promulgated, and such publications as the *Horticultural Register* furnish the best means not only of effecting this, but of suggesting such subjects of experiment as will prove most useful. Through this medium I would propose the following to such of your readers as are enabled and disposed to devote a portion of their time to objects of private and public benefit. The importance of correctly determining the distances from each other at which vegetables may be most advantageously planted, cannot be doubted; if each individual plant should occupy half a square foot more space than is sufficient to secure for it all the food, shelter, light and air which it requires to attain perfection, a large proportion of every acre so cropped therewith must prove wholly unproductive; and if, on the contrary, less than is required be afforded, the produce of the acre

will be materially diminished; and yet how various are the opinions expressed by various agriculturists and horticulturists on this interesting subject, even with respect to the same plants and soils.

The first experiment which I would suggest is calculated to obviate this discrepancy, and may be conducted in the following manner; let a certain number of equal contiguous squares, say eight, be accurately marked out, after the whole has been similarly prepared and manured; then insert the plants at four different distances, as in Figure 1, so that the spaces between them may not be the same in adjoining squares.

A'	B'	C'	D'
C''	D''	A''	B''

Fig. 1.

The plants in the two squares A' A'' may be placed one and a half feet apart, each way; those in B' B'', two feet; those in C' C'', two and a half feet; and those in D' D'', three feet; or any other distance may be chosen which the nature of the plant that is the subject of the experiment may indicate; the whole must be similarly treated during growth, and the produce of each square, when mature, separately and correctly measured; a certain criterion will thus be established, at least so far as respects the plant and soil employed, and those of a similar description. It is my intention to subject Savoy cabbages, and Mangel Wurtzel to such experiments the approaching season, and I hope others will do the same, and publish the results in the *Horticultural Register*, together with all the particulars of culture. The distances most *profitable* in the cultivation of Indian corn and potatoes may be ascertained in like manner. With respect to these, and to peas and beans, I would suggest the following experiment, (which I shall also attempt,) to determine whether in dry soils it be more advantageous to plant them in rows left *concave*, or by earthing rendered *convex*, during their approach to maturity; to guard against the effects of variation in the soil and shelter I would recommend that each row should be equally divided and the plants arranged as in Figure 2.

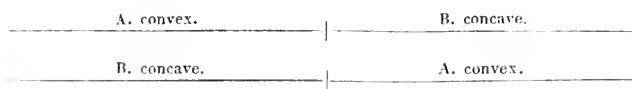


Figure 2.

I would caution the operator, in conducting his experiments to exercise the most rigid impartiality and not to be influenced by long indulged prejudices or the desire of maintaining favorite preconceived theories. I remain, very respectfully, yours,

QUIVIS.

March 6th, 1835.

ON THE GRAPE, AND THE MANUFACTURE OF WINE.

THE culture of the Vine, both under glass and in the open air, is now so well understood in this country, and so much has been written on the subject, that it seems almost hopeless to produce anything new or interesting on this too much exhausted topic. On the other hand, a work professedly Horticultural appears to many incomplete unless it lays open a practice or professes a creed in the cultivation of this most ancient, and in its prepared state, most exhilarating fruit.

The soil congenial to the perfection of the grape is still in some points a matter of considerable dispute. The German vine growers on the Rhine insist most strenuously that no flavor can be obtained without animal manure in quantity; but in one large wine district in the South of France, it was forbidden, by a public decree, to manure the vine, as it utterly destroyed the delicate quality of its produce; and in Portugal, throughout the vineyards where the finest Port wine is made, they universally abandoned the practice of laying long litter with manure around the roots of their plants, from the complete conviction by experience that it deteriorated the character of their wine. On this subject, it is not impossible that manure may be more requisite in a cold than in a warm climate; much more may also depend on the original nature of the soil. My own experience would lead me to prefer a very light, deep, and rich soil, well drained at the substratum, and at all events to avoid one that is strong, clayey, and which obstinately retains moisture, as it generally imparts an earthy taste.

Volcanic soils are also very suitable to the vine, as is sufficiently exemplified by its luxuriant growth in many parts of Italy, in Sicily, and Madeira. The district in Hungary where the celebrated Tokay

wine is made is also volcanic ; but from all I can learn, manure is much in use in these vineyards. I should certainly not think of planting the vine here without considerably manuring the soil.

Mr Metzger, Curator of the Botanic Garden at Heidelberg, in Germany, has published a work on the cultivation of the vine on the banks of the Rhine, in which he estimates the different values of soils produced by the decomposition of various rocks, with regard to this plant. That from granite, sienite, and felspar porphyry, which abound in Massachusetts, furnishes a very excellent soil. Clay (argillaceous) slate, he says, by its decomposition, supplies a very fertile soil ; if the sand (quartz) which often runs in veins in this rock, is mixed, it becomes lighter and more fit for retaining heat. The deep color peculiar to this kind of earth, increases also its temperature ; and it is the most favorable soil for the vine. Prof. Hitchcock, in his late valuable work on the Geology, &c. of Massachusetts, the practical utility of which will become every day more apparent and acknowledged, after reciting that this soil, though slightly differing, is found in the vicinity of Boston, at Quincy, in Worcester, Franklin and Berkshire Counties, says every variety, however, furnishes by decomposition a dark colored soil, which, though apt to be cold, is capable of being made very fertile, and adds that Professor Dewey says the argillaceous district in Berkshire is more fertile and productive than any other portion of the section, except the alluvial. The clay soil formed from the decomposition of shell and marl, and the mud of land gained from swamps, &c. is the least favorable.

The climate in Europe which produces the finest grapes, and consequently the richest flavored wines, is situated between the 35th and 50th degree of north latitude ; beyond these northern limits the fruit is more acid, and further south the sugar of the grape becomes too much concentrated, and the aromatic essence, which constitutes the peculiar flavor, is greatly dissipated by the heat.

The climate of the United States differs, however, materially from that of Europe, and much experience and many recorded facts are, therefore, yet requisite to fix certainty on this point. I hope now attention is so completely awakened to this subject, it will not be long ere the vine will be raised in sufficient quantities to supersede the necessity of such large importations of foreign wine. It must be strange if in some parts of the United States better wine cannot be manufactured than that imported from the Greek Islands and Sicily,

large quantities of which are annually used to mix with Madeira and Sherry, and sold as such.

As respects planting the vine, I have certainly some faith in the theory of Mr Mearns, as exposed in the coiling system, corroborated as it is by a valuable correspondent in the last number of the Horticultural Register. In Paxton's number of his Register for January, Mr Mearns states that one coiled rootless branch of the purple Constantia vine, introduced into the house 30th March, 1834, produced that summer thirtyfive bunches of well matured grapes, many as fine as were ever seen on a purple Constantia. He had begun forcing some coiled the previous season.

The outline of his plan is to create a large proportion of roots, thus drawing, compared with the upper part of the plant, considerable sustenance from the earth. In the few vineyards I visited in France, which was early in the spring, no plant was above four feet high, and the ground was manured, consequently the roots must have been large compared with the upper part, and well fed. About the mouths of the river Rhone where the vine is extensively cultivated, they dig a trench which they fill with thorns, brambles, cuttings of hedges, and prunings of all descriptions, on which they place a good layer of fresh earth; when this has settled down a little they plant the vines; the roots find their way readily among the earth, which does not cake into a solid mass, the moisture drains through rapidly, and the plants soon produce fruit. One vineyard planted in this way in 1828, gave a very fair crop in 1829. The wood of those I saw was thick, plump, and the buds at short distances from each other, appearing as if ready to burst with health. The long wiry stems, generally the shoots of the later periods of the year, being carefully cut off. Much pruning, and consequently bleeding, might be avoided if the system of disbud-
ding or rubbing off the buds were judiciously adopted.

The produce of many vines, both under glass and in the open air, is lost, from leaving on them more fruit to ripen than the strength of the plant can bear; consequently none come to maturity; this may and ought to be prevented by timely thinning out; but it would be better avoided altogether by attention. The vine is excited early and strongly, that it may shew a large crop of flowers, and the fruit set well; this succeeds, but in so doing the roots have considerably exhausted the juices of the earth which surrounds them; during the succeeding hot, dry weather, the appetite of the roots rather increases, they require at least an equal supply of nourishment as when first

starting; for want of this the fruit does not ripen. Stir up the ground around the stem and roots lightly with a fork, and pour on liquid manure frequently; this will afford all that is wanted. In the coiling system, when properly managed, scarcely any but small and ill promising bunches will need to be thinned out, the plants being plentifully supplied with this liquid food. Any one may try the above system even without a greenhouse; it is simply coiling a long shoot of the vine inside a large garden pot, the coils touching the sides of the pot, which is then filled up with rich earth, two buds or eyes being left to shoot above the surface; while growing, setting, and ripening the fruit, it must occasionally be supplied with liquid manure. Of course it will not start so early as if assisted by artificial heat, yet if began soon and kept in a warm parlor until summer, it would no doubt yield a fair crop, and it is at least worth trying. The leaves of all plants in rooms should be occasionally gently washed with a sponge to keep them perfectly clean, or they will not remain healthy.

The sorts for the dessert depend much upon taste, some preferring one and some another. To make a rich flavored wine, however, it is absolutely necessary that there should be a large quantity of saccharine matter (sugar) in the grape. The ripe Muscadine of Portugal on analysis affords more than 25 per cent of concrete sugar. The wine from it is sweet and luscious. The Chasselas of Fontainbleau, although tolerably sweet in taste, is more watery, and yields sugar in small quantities; the wine is dry and indifferent. This last grape is supposed to have been introduced from Cyprus by Francis I. of France when he rebuilt and decorated the palace of Fontainbleau. It is seldom, however, that the grape commonly cultivated for the manufacture of wine is considered fit for the table.

When Count de Chaptal was Minister of the Interior in France he collected in the nursery of the Luxembourg Garden 1400 varieties, and Don Simon de Roxas, in his splendid work on the vine, enumerates 250 varieties cultivated in Andalusia alone; of 119 of these he gives distinct botanical characters.

The process of wine making is extremely simple. The juice is expressed from the fruit and placed in open vessels, where it naturally ferments. When this operation has continued as long as is desirable, it is placed in other vessels, as casks, which are closed up. After remaining some time in these casks, to settle and become clear, it is either bottled or remains in them. This appears extremely plain, yet there are many parts which require practice, if perfection is desired.

Some of these I will endeavor to elucidate from my own experience, having formerly made from 1 to 300 gallons of wine annually for my own family use, and being habitually an attentive observer of other domestic manufacturers of this article. It is true that the ripe grape was seldom the fruit used; it was either the raisin, currant, gooseberry, or elder. The philosophy of the art is, however, in all the same. If a brisk wine, like Champagne, is required, the fruit must be gathered just before ripe (the best imitation of this wine is made from gooseberries still green) and the fermentation should be carried on for a short time only in open vats; the liquor should then be put into casks with the bung hole open, and the remaining fermentation very gradually carried on there. It will then retain a large portion of the carbonic acid gas, which is formed during this operation; the setting of which free by the admission of the atmospheric air is the cause of its brisk effervescence when the bottle is opened.

When the fruit is gathered quite ripe the wine is of a full body and flavor, but if a sweet wine is wanted it should be made from fruit rather over-ripe. The famous Tokay wine is indebted for its luscious qualities to a number of over-ripe and dry berries immersed in it to produce this richness.

If the fermentation continues too long the liquor becomes vinegar: the vinous having been replaced by the acetous, ferments, and a great part of the alcohol or spirit evaporates; if this process is arrested too early it will be sweet and syrupy, only a portion of the saccharine substance or sugar being converted into alcoholic wine. This will, however, keep a long time sound, being preserved by the spirit already formed by the other portion.

Much of the success, therefore, in wine making depends on the manner of conducting the fermentation, and as this proceeds more rapidly in warm than in temperate weather, it requires close watching. About 65 degrees of Fahrenheit is necessary for the liquor to begin to ferment, but as it progresses the heat of the liquid increases to about 95 degrees. I always preferred a dry wine, and therefore permitted the process to continue some days in large open tubs and then poured it off into clean casks with the bung hole open, placed in a cool, not cold cellar, where it continued fermenting very gradually until the taste indicated that all sweetness had disappeared, yet without leaving the slightest acidity. I then closed up the bung quite tight and usually left it alone for ten or twelve months, when it was poured from the lees into clean casks or bottled off; it was generally better for

keeping seven or eight years. Some assert that each successive year, at the season when the fruit ripens, the wine ferments a little. I never found this the case, and consider it as one of those stories which gain credence merely as a tradition.

With currants and elderberries an addition of sugar is very requisite, there not being enough saccharine juice in these fruits to induce sufficient fermentation; with gooseberries, if ripe, little, and with raisins none is necessary. What sugar is used should be white, and dissolved in hot water previous to mixture, the brown sugar always giving a coarse taste of molasses to wine.

The climate of New England is almost too uncertain for vineyards. The grape plant, however, not being hurt so much by the hard frosts as by being started, perhaps, in the last week in April or the early part of May, and then the buds and opening blossoms are liable to severe injury from the succeeding rough and cold northeast winds, before the leaves have attained sufficient size to protect them. It also sometimes happens that severe frosts occur in September, before the berries are ripe. The first case may be met by planting where there is protection from belts of trees, or hills; the other is easier, although more expensively avoided, by tying up the bunches in coarse *black* muslin, which will *considerably* accelerate the ripening, and in case of need afford protection against slight frosts. This muslin if taken care of will last three or four seasons.

In the choice of sorts for the open air in a northern climate, I should always prefer the sweetest and richest of the early and hardy species, for making wine, as even if not perfectly ripe when obliged by the appearance of the weather to be gathered, they will still contain a large proportion of saccharine juice; although even a deficiency in this necessary quality may be artificially supplied to some extent by sugar, as will perhaps appear reasonable from the following observations.

The fruits generally used in making wine have each a peculiar aroma which is supposed to communicate the various flavors to different sorts of wines. This in the grape is very discernible in almost every distinct species, and is imagined to reside principally in the skin of the fruit. The seed of the currant affords a remarkable taste to the wine made from it, which is neither to be got rid of, nor disguised; any one who has tasted much of the common wine from the Cape of Good Hope must remember a peculiar flavor attached to all the sorts; now although warm weather may increase the secretion of this aroma, yet it still exists in some measure, even in grapes raised

in the summer of a northern climate; it is probably an essential oil, dissolved by the spirit existing in the wine. But it has nothing to do with the secretions of saccharine juice which in the grape are almost pure sugar; therefore I think refined sugar may be admitted as a substitute where sweetness and richness is wanting in the fruit of the vine; and the peculiar aroma or flavor still retained, although it may not be so *strong* as that of wine imported from the countries where the climate is more favorable; and this is a deficiency not to be remedied artificially, although I have known imitations of the different sorts of wine attempted in large manufactories with some appearance of success.

The last observation the space allotted to other articles will allow me to make at present is, that I never added brandy or any spirit whatever to my manufacture, the process of fermentation, if properly conducted, rendering it altogether unnecessary. I frequently, however, distilled a spirit quite fit for chemical purposes from the lees left after bottling.

TO MAKE THE LIQUOR PREVIOUS TO FERMENTATION.

For Raisin Wine.—Eight pounds of raisins, any rich common sort will do, to each gallon of water. Put them in a large tub, and stir thoroughly every day for a month; then press the raisins in a strong cloth or horsehair bag until quite dry and throw them away.

For Currant Wine.—To each quart of fruit put a quart of water, squeeze the fruit so as completely to take away skin, stalk, and seeds; add one pound white sugar to every quart of this liquor so mixed with the water. The sugar should be dissolved in as small a quantity of boiling water as possible, previous to mixing.

For Gooseberry and Elderberry Wine, rather less sugar is required. For grape wine scarcely any sugar will be required, if ripe and rich, and no water; but never having made wine from this fruit I am not able to give directions from my own experience.

The fermentation should be carried on for a short time in open tubs, but how long depends on the weather; this operation always proceeding more rapidly in hot weather, from two to four days may be sufficient. Then fill your casks quite full, leaving the bung hole open; the mucilaginous part of the fruit and all the dirt will rise and flow out at the aperture, and as the wine sinks the cask should be kept filled quite full to the upper edge of the hole with

some of the liquor kept in a jar for this purpose. By degrees all the thick will have worked out at the bung, and it will assume a clear appearance. When it is wished to stop the fermentation, and this will depend on taste and experience, fill quite up, and close the bung hole tight as possible. In about ten or twelve months it will be fit to drink, or to put in clean casks, or bottled off to keep. I used to allow mine to ferment from three to six weeks, dependent on the circumstances above mentioned; observing that if left to ferment until the least tartness is perceptible the intended wine will scarcely ever make anything but good vinegar.

J. E. T.

[For the Horticultural Register.]

ON THE CULTIVATION OF QUICK SET HEDGES IN THIS COUNTRY.

THE neat thick cropped quick-set (*Cratægus oxyacantha*) hedges in England are the theme of admiration with all who see them, and their general introduction into this country, would much improve the appearance of the landscape: we are enabled by the kindness of a friend to present to our readers, the following information respecting these plants.

In the Autumn of 1833, he ordered a large quantity from Holland of two years old quick, which arrived here sufficiently early to be planted round his grounds as soon as the frost was out of the earth.

The grass sod was pared off about two feet wide and laid on the top of the stone wall, two or three inches of good manure was dug in, and the ground well pulverized, the plants were unpacked and the roots immersed twentyfour hours in water, after which they were headed down to about four inches in height, and planted in double rows firmly in the earth at the distance of four inches from each other. Of the whole quantity so planted, not more than three or four failed. It is of great importance to soak the roots in water, as some with which this process was not adopted, failed entirely. It is also necessary to observe that for the fourteen days following the planting, rainy weather prevailed—which no doubt contributed much to the success of the operation, and should contrary weather set in, watering in the evenings would be recommended.

These hedges require clipping every Spring with shears, previous to

the bursting of the buds ; they are otherwise apt to grow straggling, thin and unsightly. This operation, however, if done annually, requires but little time and labor, which is amply repaid by the neatness and beauty of their appearance. If such a hedge is planted as a fence round a pleasure garden, about twelve to eighteen inches fine turf border between the plants and the walk, neatly kept, makes a beautiful finish.

In Europe, these plants are commonly raised from seed, but not unfrequently from cuttings. It will be seen, however, by the estimate of expenses of importation, below, that they do not cost more than one cent each delivered here, and if for the expense of planting another cent be added, the cost is so small as to make it not worth while for any but nursery-men and gardeners, who deal in large quantities, to raise them originally, when only destined for ornamental planting.

The plant grows wild in this vicinity, but rather sparingly, the blossoms, however, exhale a delicious perfume, and in the early part of May, the atmosphere where it abounds in England, is sensibly impregnated with it, and the hedges are white with its snowy flowers, which are succeeded in Autumn by thick clusters of red berries, a kind and benevolent provision by the great Author of all, for the feathered tribe.

It is vulgarly called May in England, and is gathered in the first of the month, by the village lads and lasses, to decorate the May-pole around which they dance and enjoy their rural games ; those conversant with our older poets, will call to mind many beautiful passages descriptive of the joys of Maying.

Invoice of two thousand Hawthorn slips, shipped for Boston from Rotterdam.

3 bundles containing, 2000 Hawthorn slips	
at 17 1-2 guilders, per 1000 - - - - -	35,00
Carriage from interior, Packing, Bills of Lading,	
Commission, Shipping, &c. - - - - -	7,20
	42,20

The florin or guilder, is worth about 40 cents, consequently, they cost there about seventeen dollars, adding freight and expenses here, would make them stand under one cent each.

The plant is subject, however, in this climate, to the depredations of the borer. A gentleman in the vicinity of Boston has communi-

cated to me the valuable information that he has found the ashes of the Anthracite coal laid round the stems of trees some inches deep, a perfect protection against this destructive insect. As these ashes are of no other use, and in almost every house, the application is easily made.

I have heard that the seedling apricot, even as early as two years old, makes an excellent and pretty firm fence, and should much like to see a communication on the subject from any one who has given it a trial; in fact, well planted hedges are so much more sightly and in the end so much cheaper than the common stone fences, that their introduction here seems very desirable. Any information, therefore, in your Register on the subject of hedges in general, would prove interesting to the horticulturist.*

T.

{For the Horticultural Register.}

ON HEDGES.

HEDGES, or live fences, are becoming every day more necessary. In many parts of the country timber is too scarce for valuable fencing materials, and even in the few agricultural districts where stone abounds, the progress of cultivation, and the increasing wants of our growing towns and villages, will sooner or later cause the farmer to resort to *living* materials for fencing his lands. For the *Garden*, hedges are undoubtedly preferable to all other means of inclosure in this country, where walls are so little used or needed. Their imperviousness, their durability, and their beauty surpass either the most nicely constructed paling, or the firmest and smoothest wall. And what harmonizes so well with the pleasing green of the field, or the garden, as the verdant foliage of the live fence?

What, then, is the best material for hedges? We, who are accustomed to draw a large share of our horticultural information from a

* The above article was already in type before the Editors received the following interesting communication from A. J. Downing, Esq. Had it come earlier to hand, this would have been omitted altogether, as possessing less valuable information on the subject. The writer has seen many hedges of *Cydonia Japonica*. They are extremely beautiful, but of very slow growth. He also begs to add that he has just received the catalogue of Messrs Prince, of Flushing, L. I., where the White thorn is quoted at a lower price than that named in his invoice.

nation older in this as in other arts and sciences, are taught to believe that the proper answer to this question is, the *English White Thorn*. But experience is teaching us that this is an error. How many millions of the English thorn have been planted in this country, and how few of them ever make a healthy and permanent hedge! The secret lies in the climate. The summers of England are *moist* and cool, when compared with ours. The powerful sun and dry climate, which bring to plentiful maturity the Indian corn, the peach and the melon, are not the sun and the climate which are congenial to the European Hawthorn. They are too fine and dry. In the moist and showery months of April, May and June, the Hawthorn looks exceedingly promising; its shoots appear green and healthy; but soon the hot July sun bursts forth, and it is checked almost as by a nipping frost. Then the insects attack it, and by the last of August the hedge is stunted and already leafless! Hence its growth is exceedingly slow, and as it is a prey to insects, which cause its decay, and to defoliation by the intensity of the summer sun, it is neither durable or beautiful. It is true, that during the first two or three years of its growth, its healthy and vigorous appearance is very flattering; but this is only whilst the plants are young, and before their interlacing roots and branches have found it necessary to attract nourishment from a limited portion of the surrounding soil.

It goes far to corroborate the opinion, that the dryness of our soil and atmosphere are the *first* causes of failure with the English Hawthorn, to find that in situations *naturally moist* and damp through the summer, it appears to grow with equal luxuriance, and to attain the same degree of maturity, as in Europe; but, as only small portions of the farm, and no good garden, will be found in moist localities, it is therefore necessary to search for some other material more generally adapted to the wants of our wide-spread territory.

There are over twenty species of *Cratægus*, or Hawthorn, indigenous or growing wild in North America alone — more than the aggregate number in the known world besides! Shrubs and trees which, for sharpness and abundance of thorns, beauty of foliage, rapidity of growth, and compactness of form, (when properly trimmed) yield to none others of the genus. Is it not remarkable, that with this abundance and choice of materials for hedges, scattered by bountiful nature through every wood, and by every high-way side, that we should have to stretch forth our hands, and borrow from another clime a starved and lingering exotic? But so it is; — and

Horticulturists, as well as other men, must gather knowledge from experience. After repeated trials and failures with the imported plant, we are now content to turn our attention to the natives. Here we find species which are perfectly hardy, and to which our sun and climate are as necessary as they are injurious to the foreign. Four species have been already tested, and found to be admirably adapted for hedges, viz: the Cockspur or Newcastle thorn (*Cratægus crus galli*), the Washington thorn (*C. populi folia*), and two others, only known by the common name of thorn bush (*C. coccinea* and *C. punctata*). Of the Washington and Newcastle thorns, very fine hedges are now thriving in many sections of the country. They are found to grow with more luxuriance, to retain their fine vivid foliage through the hottest of the summer, and, in common with many other American trees, to assume an autumnal tint of the most beautiful crimson and orange, which remains until severe frosts. These two species seem to adapt themselves to almost any soil; but if not, their places may be supplied by such species as are found naturally to thrive best in the neighborhood—for almost every section of the country abounds with some species of Hawthorn. Perhaps in the Southern States, they will ascertain that some of the peculiarly southern species succeed best.

For situations where strong hardy hedges are wanted, in a short period of time, the three-thorned Acacia (*Gleditschia triacanthos*) will be found an excellent plant. Hence it is well adapted to farms; but from its rampant growth, it is difficult to keep it sufficiently close in its side spray properly to shelter the garden from all its enemies. Among the Hedge plants which demand the attention of the Horticulturist, are the Buckthorn (*Rhamnus catharticus*), which makes an excellent fence; the privet, long in use, and a beautiful and verdant inner shelter to the garden, but not a sufficient protection against cattle; and the *Mespilus pyracantha*, or Evergreen thorn, ornamented in its white blossoms and coral berries. European publications speak in high terms of the great beauty and excellence of the Japan Quince (*Cydonia japonica*)—already known here as a charming flower shrub,—used there as a garden hedge plant. We have great hopes of success, also, with the Osage Orange (*Maclura aurantiaca*), a native of the West; and its glossy green foliage, stone thorns, and rapid growth will place it in the first rank of hedge plants.

Newburgh, N. J. March.

A. J. DOWNING.

ROSE-BUGS.

BY DR R. GREENE.

IN the years 1825 and 1826, the rose-bugs were so numerous in the gardens of the writer, as to threaten a total destruction to plants, shrubs and trees. In their three first stages — the egg, the larva, and the chrysalis state — they are beyond the power of man; and in their last or perfect stage they are only partially under our control. Our only hope was, that by some natural means, this scourge would be removed. The grasshopper and the cankerworm had been, within our recollection, destroyed in one or two seasons by some natural operation of nature, perhaps little understood.

The only effectual means of lessening the number of rose-bugs, and thereby saving the products of our labor from destruction, were, by crushing them with the hand, or shaking them into vessels partially filled with water. The latter course was closely pursued during their visitation from 1825 to 1833, eight years, with the exception, that in the year 1825 the process was not commenced in due time; consequently, not so many were caught as in the following years.

The enemy were most numerous in 1826, but from that time they diminished in numbers. I have no doubt, but that the measures which I pursued did much in thinning their ranks in my gardens, year after year, and were the means of preserving my plants, fruits, &c. In 1833, they were, by some natural cause, nearly exterminated in this vicinity. Probably the cold and wet weather in the months of May and June destroyed them, while in the chrysalis state. During their visitation that year, only now and then one or two were seen, except at one time four were observed.

Four or five years since, two species of insects, of the same genus with the rose-bug, and with like habits, visited us, and in 1832 were numerous; being voracious, seemed disposed to divide the spoil with our old enemy. One was of a dark color, and a little larger than the rose-bug; the other still larger, of a brownish color, and spotted on the back. These new insects were far more easy to destroy than the rose-bug. On shaking the vines, &c. they would fall to the ground, not attempting immediately to escape by making use of their wings. Domestic fowls would eat them with greediness. All that was necessary to be done, was to call the fowls, and shake the vines, or whatever plant on which they were found. But these

insects were nearly extirminated with their fellow depredators, rose-bugs, in the spring of 1833, and I can with much truth, sincerely say, Amen.

The following table will show the first appearance of the rose-bug in my gardens, — when most numerous, — when very few, — when last observed, — and also the quantity caught in each year.

Year.	First appearance.	Most numerous.	Very few.	Last observed.	Quantity caught. Pecks. Qts.
1825	June 8	June 12	June 23	July 8	say 3 0
1826	“ 3	“ 8	July 9	“ 21	5 0
1827	“ 8	“ 20	“ 9	“ 18	1 0
1828	“ 10	“ 20	“ 10	“ 23	1 2
1829	“ 7	“ 17	“ 4	“ 21	0 7½
1830	“ 5	“ 23	June 30	“ 31	0 5½
1831	“ 4	“ 16	“ 30	“ 10	0 5½
1832	“ 22	July 3	July 7	Aug. 11	0 1½
1833	“ 7	Almost exterminated.		“ 16	none.
1834	“ 17	Very few at any time.		July 24	none.

I have only to remark, that I have aimed at correctness.

Mansfield, Feb. 25, 1835.

NOTICES OF THE NEWEST AND BEST FRUITS AND VEGETABLES.

[Extracted from Loudon's Gardener's Magazine for January, 1835.]

The information respecting the fruits was chiefly furnished by Mr Thompson and Mr Barnet of the London Horticultural Society's Garden; that respecting the vegetables from other sources, with a few researches and translations by the Editor of the Horticultural Register.

Cabbages. — Early dwarf Russian; the dwarf Portugal, as an article of luxury the new Russian dwarf Broccoli is said to be one of the best sorts.

Peas. — Knight's new green tall Marrow; Knight's green Marrow; Early Warwick; D'Auvergne pea, synonyme D'Auvergnay, is excellent, very productive, was sent to London Horticultural Society by M. Vilmorin of Paris. An account of it was published in the *Bon Jardinier* for 1832, page 269, and in the *Transactions of the London Horticultural Society* for Jan. 1834, where may also be found a

description of M. Vilmorin's Sugar pea, stated as deserving of cultivation.

Kidney Beans.—Painted Lady Runner—blossoms beautiful scarlet and white, very prolific, not so tall as common scarlet runner. The scarlet long pod is an improved variety.

Carrots.—The purple skinned and white skinned are novelties, but more articles of curiosity than value.

Turnips.—Three sorts new to English gardens and of excellent quality.

1st. Navet blanc plat hâtif (Early flat white Turnip)—Small, flat, excellent flavor, comes in a week earlier than the Early Dutch.

2d. Navet rouge plat hâtif (Early flat red Turnip)—Not quite so flat as the former, nor so early by a week; the part above ground of a dull purplish color. The seeds of the above may be obtained from M. Vilmorin, Paris.

3d. Black Turnip—A valuable summer and autumn variety, rather larger than the Early Dutch; globular, very firm, the outside skin dark brown, inside white; very hardy and remains long in perfection. It was sent to the Horticultural Society by Messrs Booth of Hamburg. The writer cultivated this turnip more than twenty years ago, from seed received from a friend in Germany, where it has been long known.

Potatoes.—The forty fold Potato is very prolific, and said to be extremely mealy and well tasted.

Oxalis crenata is much talked of, but does not appear to increase in public estimation.

Radish.—Radis rose demilongue (medium size rose radish) is a very superior variety lately received from Paris. It is of a fine bright scarlet color, an intermediate sort between the long and round rooted variety. Early, very productive, of excellent quality, and remains longer in perfection than any of the long rooted varieties; it is well adapted for growing in frames.

Celery.—The Italian and Kentucky are recommended as the best.

Apples and Pears.—Almost all these sorts, and many other more valuable for this climate, may be found in the New American Orchardist, by W. Kenrick of Newton, or in the first number of our Register, pages 7 and 8.

Peaches.—For a small collection to ripen in the following order: Earliest, Early Ann, Malta; next, Double Montagne, Royal Charlotte, Noblesse, Royal George; next, Grosse Mignonne, Barrington;

latest, Bellegarde, Late Admirable. Should any of these not agree with the soil, others may be introduced, as the Acton Scot, Spring Grove, Mountaineer, which are probably hardier. The best varieties for forcing are Bellegarde, Grosse Mignonne, Royal George and Barrington.

Nectarines. — None are so good as Elruge and *Violette Hâtive* (Early Violet). Hunt's Tawney is considerably earlier than these; and for a later sort the Late Yellow deserves notice. In a warm soil and favorable situation the new White Nectarine will produce fruit which will not only form a beautiful contrast in the dessert, but will also be esteemed for its excellent flavor.

Apricots. — Red Masculine, Large Early, Royal Moor Park, Breda, Turkey, and Orange; this last is the best for preserves.

Plums. — Drap d'Or, Green Gage, Kirke's Washington, Reine Claude, Violette, Coe's Golden Drop, Blue Imperatrice, Coe's Fine late Red, Early Orleans, Shropshire Damson, Diamond, and White Magnum Bonum.

Cherries. — For standards, May Duke, Royal Duke, Late Duke, Black Eagle, Elton, Downton, Knight's Early Black, Black Tartarian, Morello, Kentish. The earliest cherries are Early Purple Guigne, Werder's Early Black Heart, May Duke, Knight's Early Black, Bowyer's Early Heart; the latest are Late Duke, Florence, Bigarreau Tardif de Hildesheim, (late Bigarreau of Hildesheim,) Morello.

Gooseberries. — The best early reds are the small dark Rough Red, Keens' Seedling, Later Red Champagne, Warrington and Red Warrington, Yellow Early, the Early Sulphur Yellow Champagne is later. Green, Early Green Hairy, later, Massey's Heart of Oak, Pitmaston Green Gage, this is deserving peculiar notice, in some seasons it will hang till it shrivels and almost candies on the tree. Whites, — Taylor's Bright Venus is of an excellent flavor; Woodward's Whitesmith, and Crystal. The earliest sorts are Miss Bold, Wilmot's Early Red, Green Walnut, Early White. Late sorts — Leigh's Rifleman, Bury Farmer's Glory, Farrow's Roaring Lion, Late Green, and Cook's White Eagle. The best large sorts are reds, as the Roaring Lion, Top Sawyer, Crown Bob, and Wonderful. Of the yellows, the largest are Gunner, Rumbullion, and Piggott's Leader. Of the green, BUMPER, Peacock, White Eagle, and Ostrich.

Currants. — Best black are Black Naples and Black Grape; best red are Red Dutch, Knight's Large Red, Knight's Sweet Red, Knight's Early Red, Wilmot's New Red, exhibited last summer at

the London Horticultural Society is the largest berried variety known. Best white is the White Dutch.

Raspberries. — Best reds are Barnet, Antwerp, and Double Bearing Yellow, Yellow Antwerp.

Strawberries. — *Scarlets* — Old Scarlet, rather shy bearer, but the earliest; Grove End Scarlet is an abundant bearer; Roseberry, adapted for forcing; Gomstone Scarlet, Black Roseberry, American Scarlet, and the Coul late Scarlet which does not ripen until all the other sorts are over. *Blacks* — The Downton, excellent for preserving; Elton Seedling, great bearer, ripens late. *Pines* — Keens' Seedling is the best of all for general cultivation; Old Pine, Myatt's Seedling is a shy bearer, but with so very high a pine flavor that when Keens' Seedling sells in Covent Garden Market at sixpence per pottle, Myatt's Seedling fetches three shillings for the same quantity; it generally bears two crops each year, the last ripening in the early part of November. In consequence of this the plants soon exhaust themselves, so that they cannot be depended on either for duration or crop. Knevet's Seedling is large, prolific and very high flavored. Wilmot's Superb is very large. *Hautbois*, prolific and large flat. *Green* — The Green Pine. *Alpines* — Red, White, Redwood and Whitewood.

Filberts. — The Red and White Filbert, the Cosford Nut, and the Cobnut are the best.

Pine Apples. — Queen, Moscow Queen, Black Jamaica, Brown Sugar Loaf, Ripley, St Vincent, Black Antigua, this should be cut as soon as it begins to turn yellow, or it will lose its richness. Enville, Lemon Queen, White Providence, Trinidad; this last is the largest grown, being reported to weigh sometimes 26 lbs.

Vines. — To plant against a wall of a southern exposure — Early Black, White Muscadine, Grove End Sweetwater, Pitmaston White Cluster, White and Black Sweetwater, small and large Black and White Cluster, Black Esperione. For early forcing in a Vinery, the preceding, or the Esperione, Black Prince, Cambridge Botanic Garden Grape, White Muscadine, Royal Muscadine, White Sweetwater, White Frontignan, Grove End Sweetwater, and Red Frontignan. Some new varieties of grape have lately been raised by Mr Williams of Pitmaston, and the fruit exhibited at the Horticultural Society in October, 1834, which promise to be hardy and high flavored. Money's Hardy Muscat or Eshcolata seems to deserve trial. A very dark variety of Black Hamburg in the Lewisham Nursery, Messrs Wil-

mot's, produces fruit which, on account of its color, sells a little dearer than the common Black Hamburg. We expect soon to be able to announce a very superior variety of Winter Grape as introduced from Belgium.

At the meeting of the Caledonian Horticultural Society, Sept. 4th, were exhibited a seedling Plum, raised by the gardener of Robert Bruce Dundas, nearly allied to the Green Gage, but ripens on standards; two excellent seedling peaches, raised from the kernels of American kinds by the gardener of the Earl of Dunmore.

At the meeting 16th Sept. — A seedling apple and a seedling pear were shown, both considered promising; and a small branch of the Bursut apple, studded with fruit, was sent by Mr Gorrie; the tree was dwarfish and produced numerous clusters of fruit. At a subsequent meeting two seedling apples were exhibited, one raised by crossing the Golden Pippin with the Scarlet Nonpareil, the other from the pips of the Doonside. J. E. T.

PINUS LAMBERTIANA.

LAST spring Mr Robert L. Emmons of Elliot Street, showed me two very large cones of a Fir tree, which he stated had been brought from the Coast of California by the captain of a vessel trading in those parts.

It struck me at the time as being probably the cones of the above named enormous sized tree, discovered by Mr Douglass, and named by him after Mr Lambert, the President of the Linnæan Society of London, and author of a valuable work with magnificent plates, on the Pine family. His description is as follows, almost in his own language.

He states the usual dimensions to be from 150 to 200 feet in height, and 20 to 60 feet in circumference. The actual measurement of one which had fallen to the ground was 215 feet high; at three feet from the earth the circumference was 57 feet 9 inches; at 134 feet from the earth, 17 feet 5 inches; the trunk unusually straight, leaves four to five inches long, in fives, (that is five in a bunch,) held together by a short sheath, like *Pinus strobus*, rigid, (stiff,) bright green, not glossy, with minute denticulations (teeth) on the margin.

The cones are eleven inches in circumference and twelve to sixteen

inches in length; the scales lax, (loose, not close together,) rounded at apex, (upper point,) perfectly destitute of spines; seeds large, eight lines long, (a line is the twelfth part of an inch,) four lines broad, oval; kernel pleasant to the taste; wing membranous, of a dolabriform (hatchet shaped) figure, and fuliginous (smoky brown) color, about twice as long as the seed, with an innumerable quantity of minute sinuous vessels filled with a crimson substance, forming a beautiful microscopic object. Embryo twelve or thirteen cotyledons. The vernacular name in the language of the Umptqua Indians is Nat-cleh. It covers large districts in the northern parts of California, 100 miles from the ocean, lat. 43 north, and extends as far as about 40 south, at the head waters of the Multnomak river, and beyond a range of mountains running in a southwesterly direction from the Rocky Mountains towards the sea, terminating at Cape Orford of Vancouver. It does not form forests, but grows singly; the timber is white, soft, and light, and abounds in a light colored resin.

Mr Emmons having at the time kindly presented me with a couple of seeds, I planted them, and to my satisfaction one vegetated; from this and the cones, which I have lately examined for this purpose, I give the following description.

These cones measure nine inches in height, but they are apparently not finely grown; their circumference is eighteen inches; this excess over those of Mr Douglass is, however, owing to the scales being lax, and now very open. These are destitute of spines at the apex and quite smooth and glossy, with the exception of one or two of the lower rows, which are armed with a hook bent backwards; a light colored resin exudes in great abundance from the apices of many of the scales.

The seeds are oval, five eighths of an inch long, one fourth to one half inch broad, with a hard shell, the kernel of a pleasant taste. Owing to an accident I did not count the cotyledons, and did not wish to sacrifice another seed for that purpose. The wing, the shape of which is perfectly dolabriform, is about twice the length of the seed from the upper part of the cone, where they are the smallest, but the wing of those from the lower part is not more than the length of the seed. On holding the membranous wing, which is of a dull brown color, as previously described, between the eye and the light, numerous sinuous vessels were very distinctly seen, containing a dark brown substance; by soaking it some hours in warm water the fine crimson colors became quite apparent with a good magnifying glass.

My plant is yet only five or six inches high, and but few except the seed leaves (cotyledonous leaves) have yet made their appearance; therefore it is impossible to say if they come in fives with sheaths or not; a few buds now showing, certainly look much like it. What leaves there are, however, are very rigid, bright green, not glossy, and minutely though distinctly toothed on the margin. It will be observed on comparing the two descriptions that they differ in the apex of the scales of the cone, (strobilus,) and in the size of the wing on the largest seeds, but agree in almost every other character; I therefore hope they will finally turn out to be the true *Pinus Lambertiana*.

I regret that both my seeds did not vegetate, as I would then have certainly ventured one in the open air all the winter, being much inclined to the opinion, from the latitude of the native locality of the tree, that it will be easily acclimated here. That I have has remained since October in the cellar, and looks in perfect health.

I was happy to hear that Mr Emmons, as well as several of his friends, had succeeded in raising some plants also. Mr E. informs me that most of his damped off, owing probably to the rich, moist soil in which they were planted. It appeared to me that like most of this tribe a dry sandy earth would be more suitable; for mine, therefore, I made a mixture of one half sand and one half common garden mould. In its present young state it has sent out a tap root as much as four times the length of the plant above ground; this seems to favor the idea of its being a tree of very lofty growth.

The gentleman before referred to having liberally given me a few more seeds, I intend this spring to make the three following experiments:

One third of the seeds I shall plant as last year, just as it falls from the cone.

One third I shall file considerably round the edge of the hard shell where there is a natural division, as may be observed in the peach, almond, cherry, and other stones, taking care not to touch the *narrow end* from which the root (radicle) of the embryo will shoot, and then plant them with this narrow end downwards, so that when the kernel swells it may easily burst the shell and proceed in vegetating.

Of the remaining third I shall remove the outer hard shell altogether, and plant only the kernel, although I fear this method will expose the seed to decay before it can spring up, and will certainly lay it more open to the depredations of the insect tribe.

The reasons for these experiments will be evident to most. They

are, however, generally founded on my view of the usual operations of nature, which it would be well to imitate more frequently than is usually done. In the large natural forests, the seeds with stones or hard shells (*Achenia*) fall to the ground, are uncovered and exposed to alternate wet and dry, perhaps for two or three years; this would quickly rot the kernel, had it not the protection of the shell. As it is the shell decays and becomes soft, particularly at the natural divisions, still, however, protecting the kernel in some measure; at length it becomes lightly covered with the annual layers of leaves which fall each autumn, and these produce and maintain that state of warm moisture and nourishment in the spring so favorable to the vegetation of seeds.

If I succeed in raising these plants I shall, after retaining a few for experiments in acclimation, disperse the remainder amongst those gentlemen who, however little they may expect to see them attain maturity, will not object to plant a tree for posterity, which, as the old Scotchman told his son, "will be aye growin' while ye're asleep."

The turpentine of *Pinus Lambertiana*, when partially heated, loses its peculiar flavor and acquires a sweetish taste. The natives use it as a substitute for sugar. The bark is very smooth.

Of its value as timber I have of course no personal means of judging, but as Mr Douglass states it to be white, soft, light, and the trunk straight, it cannot fail to be a desirable tree for useful purposes; while its towering height above all the trees of the forest, added to the usual graceful appearance belonging to almost all the trees of this tribe, must make it highly ornamental, and should it become common here, Mr Emmons will no doubt feel much gratification in having introduced so valuable a tree into this section of the United States. I cannot omit this fair opportunity of again impressing on the minds of captains and travellers generally, the great service which a knowledge of and a taste for natural history may be; it is impossible for them to foresee the utility of facts and observations which they may collect in distant regions and which although apparently insignificant and insulated to them, are often, when combined with others and well reasoned on, of considerable importance.

Should any one who reads this visit the spot on the Multnomak river, where this splendid pine tree grows, they will find under its shade a curious shrub, of a harsh and rough look, from four to twelve feet high, with numerous stiff, rather spinous branches, very leafy, and covered with a rusty colored down; the whole plant, even with-

out rubbing between the fingers, gives out a strong balsamic odor, like that of some Balsam Poplars, mixed with a powerful astringency, resembling somewhat the smell of birch twigs. Mr Douglass has called it *Rhamnus cuneatus*. *Rhamnus* is the botanic name for Buckthorn, but Prof. Hooker, from the examination of the dried specimens, with much reason suspects it to be different, and calls it a very singular plant. It would be desirable to have some specimens both of fruits and flowering branches, and particularly seeds, that an attempt might be made to raise living plants. J. E. T.

MASSACHUSETTS HORTICULTURAL SOCIETY.

SATURDAY, MARCH 14.

Bouquet from Thomas Mason, Charlestown Vineyard: *Camellia myrtifolia*, do. *atrorubens*, do. Midlemist's red, *Illicium floridanum*, Vanilla, Tea Rose, Blush do. do. Undulate Rose, Sanguinea do. *Azalea phœnicea*, do. *indica alba*, do. do. *purpurea*, *Iris sinensis*, *Cineraria elegans*, *Pelargonium Miss Maitland*, do. *graveolens*, *Correa alba*, *Polyanthus* of sorts, *Cyclamen persicum*.

Bouquet, from Mr Sweetser, Cambridge Port: *Phlomis fruticosa*, *Pæonia moutan*, *Cyclamen persicum*, *Iris sinensis*, *Rubus rosæfolius*, *Iberis purpurea*, *Eupatorium speciosum*, *Alonsoa speciosa*, *Viburnum tinus*, *Cineraria elegans*, *Verbena aubletia*, varieties of *Pelargoniums* and *Hyacinth*.

From Eben. Putnam of Salem: a fine specimen of the new yellow Noisette Rose.

MARCH 21.

From Messrs Winship: Lady Banks' white evergreen multiflora rose, new, superb, and thornless; a climber, Double Yellow Bank-sia, or yellow evergreen multiflora rose, a climber; from a friend's conservatory. By order of the Committee,

JONA. WINSHIP, *Chairman*.

At a grand *fête* given during last fall, at Wentworth House, England, the seat of the Earl Fitzwilliam, the refreshment room was decorated with a bouquet of fruit, composed of every variety of grapes, pine apples, peaches, nectarines, &c. measuring five yards in circumference, valued at about six hundred pounds sterling.

WANT of room obliges us to omit several articles in this number ; among others, Horticulture in the vicinity of Boston. We cannot, however, leave unnoticed a magnificent plant now in full beauty, in the green-house of J. Lemist, Esq. of Roxbury ; it is a hybrid between the *Rhododendron arboreum* and one of the common sorts, displaying seventeen pyramids of splendid flowers, and seven buds yet to unfold. The color is more of a purple hue than *arboreum*, but brighter, and no doubt like many hybrids, blossoms more freely than the parent plant. There are many showy and valuable specimens in this collection, which we hope to notice more at large in a future number, our attention on this visit having been completely riveted by the above beautiful *Rhododendron*.

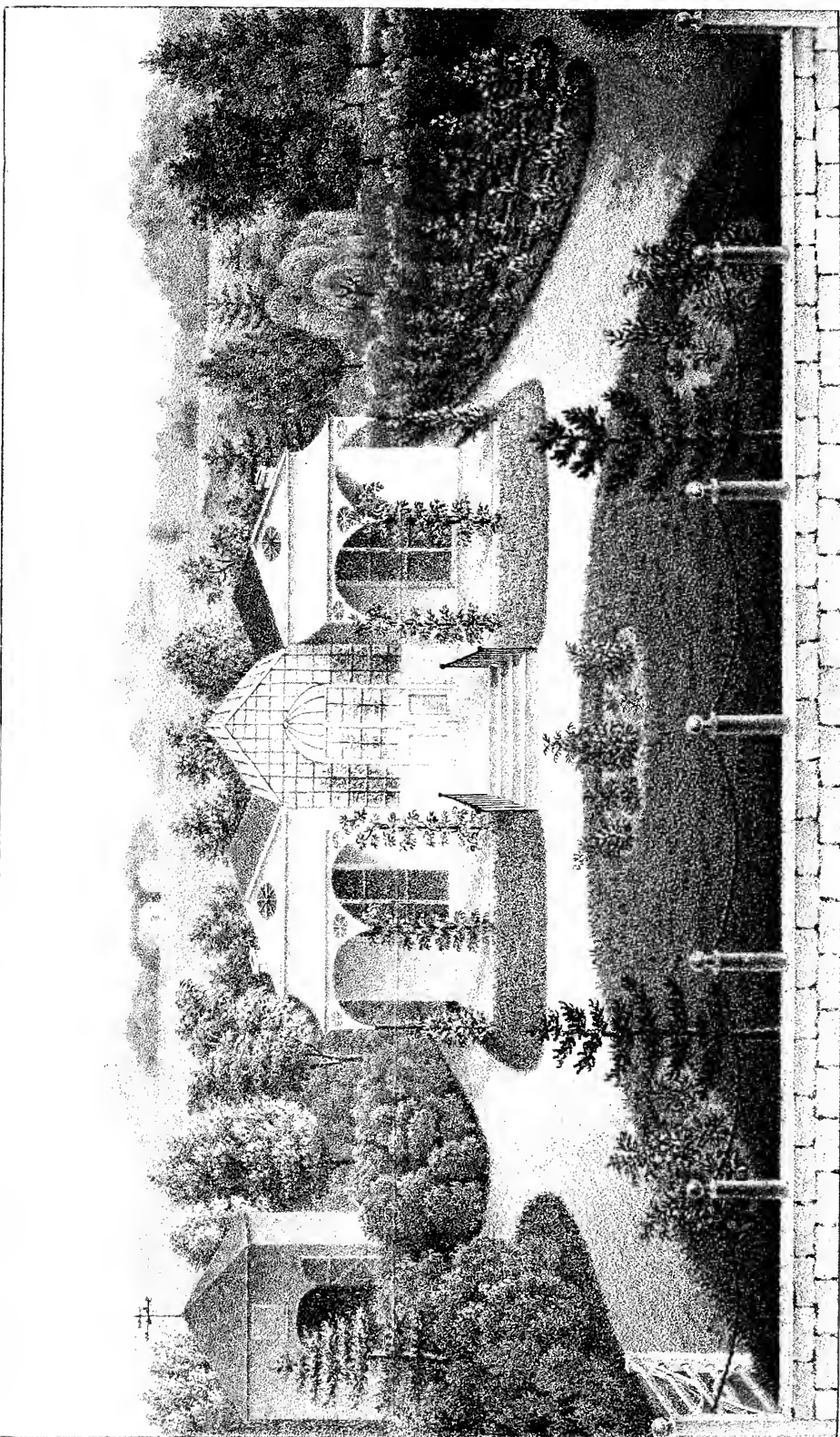
GARDENER'S WORK FOR APRIL.

IN the Eastern States, and on moist and heavy land in the Middle States, the greater part of our garden crops are usually sown in April. You may now sow such seeds as we directed to be sown in March, if the site, soil, or season rendered earlier sowing improper or injudicious. You should, on no account, plough, harrow, or dig a stiff and moist soil, while it is wet, and of course clammy and adhesive. But a light sandy soil will derive benefit from being stirred while moist.

It was well observed by Mr M'Mahon that " earth of a consistence that will hold water longest without becoming hard when dry, is that of all others the best adapted for raising the generality of plants in the greatest perfection. The great art of improving sandy and clay soils is to give the former such dressings of clay, cow dung, and other kinds of manure, as will have a tendency to bind and make it more compact, and consequently more retentive of moisture ; and to the latter coats of sandy earth, pond mud, horse dung, &c. It is better, as a general rule, not to sow the seeds for the principal garden crops till the soil becomes somewhat warm and dry, lest the young plant should be frost-bitten or chilled beyond recovery.

The following are among the vegetables which you may sow this month, if the season and soil will permit. Artichoke — The seeds may be sown in a bed in such quantity that the young plants will be about six inches apart each way, allowing for accidental bad

seeds, &c. They should be covered about three quarters of an inch deep. They may be transplanted next spring in rows five feet apart, the plants standing two feet apart in the rows. Asparagus — For valuable directions relative to the culture of this vegetable, see our March No., p. 79. Beans — For Garden, or English beans, one pint of seed will be requisite for every eighty feet of row. The rows should be about two and a half feet apart, the seeds about three inches distant from each other in the rows. Kidney Beans — Plant in a dry warm soil, near the last of this month for early use ; but the planting of the principal crops had better be deferred till near the middle of May. Draw drills an inch deep and two feet or thirty inches apart ; drop the seeds two inches apart, and cover not more than an inch deep. Beets — A few beets, in a warm soil, but the main crop about the middle of May. For the long rooted sorts trench to the depth of eighteen inches. Sow in drills an inch and a half deep, a foot apart, or dot in the seed with a thick blunt ended dibble, in rows that distance, making holes ten or twelve inches apart and about an inch and a half deep. Drop two or three seeds in a hole, to be thinned out so as to leave but one in a place. For cabbages, see the calendar of last month. Cucumbers may be propagated according to Mr Armstrong's method, which is as follows : "Scoop as many turnips as you propose to have *hills* ; fill them with good garden mould, and plunge them into a hot bed." It would be advisable, however, after your scooped turnip is filled with mould, to make a hole through its bottom like that in the bottom of a flower pot, to prevent the roots of the cucumber plant from being too much confined. You may also propagate squashes, pumpkins, watermelons, &c. in the same way. Grass sods or bits of turf may also be used as substitutes for garden pots in forwarding vegetables, according to a method described in our last number, pp. 112, 113. Carrots and parsnips may be sown as directed last month, p. 116. All the sorts may be sown, either broad cast or in double drills ; the latter is preferable, allowing the roots to be drawn regularly with less waste. Rhubarb — Best raised from seed. Common culture. Salsify, or oyster plant is raised from seed or roots. It is very hardy, grows in almost any soil. It should be covered with sand or earth, pots or boxes, so as to bleach it as soon as vegetation commences in the spring. Spinage may be sown in April, broad cast. Two ounces of seed will sow a bed four feet and a half by thirty feet. In drills one ounce will sow the same space. The drills should be from nine to twelve inches apart, and the seed sown thinly in the rows.



THE
HORTICULTURAL REGISTER

AND

GARDENER'S MAGAZINE.

MAY 1, 1835.

ON HORTICULTURAL ARCHITECTURE.

WE present to the readers of the Register the first of a series of drawings which have been some time in preparation, destined to extend and cultivate a taste for ornamental habitations, and for rendering such garden spots as may be attached to them embellishments instead of mere receptacles for weeds. Nor need the size of such spots be any impediment, for however small, there is always room for the exercise of taste in laying them out, and when once in order, very little time and attention is required to keep them so, provided such attention is constant. For grounds of large surface containing considerable inequalities, with varieties of wood, water and plain, an extension of the principles laid down will be necessary; but even here the application of a few simple rules of taste may be sufficient to convert them into sources of great enjoyment.

The principal feature of the plan in the drawing is the construction of a green-house in the centre of the cottage, which has only one attic story; the rooms on each side of the entrance may be imagined as being each sixteen feet wide in front and eighteen or twenty deep, with fourteen feet width for the green-house, which would give a front of forty-six feet; behind the drawing-room on the right might be the principal bed-chamber, of sixteen feet square; on the left might be the dining room and a kitchen, with a closet between. This is merely

stated incidentally, as the plan of an area of fifty or one hundred feet square will depend on the taste and pocket of the builder, and the present observations are intended as applicable almost entirely to the garden and conservatory and exterior.

In many houses which are warmed throughout, the entrance is frequently appropriated to plants, and where it is feasible why may not a glass roof be substituted for the shingle or slate, thus affording the necessary vertical light? advance one step farther by giving a glass front and we have a green-house. Those who have had occasion to go during the winter months from their warm parlors some hundred feet in the open air to visit the green-house, and again to return from the warm atmosphere there to the house, can certainly appreciate the advantage of passing at once from one to the other without encountering these sudden changes; while the immediate proximity of their favorite flowers would afford them more frequent opportunity of enjoying them, as well as of partaking this pleasure with their friends.

That such a green-house and the whole house likewise might be warmed by a single fire in the cellar on the hot water system admits not the slightest doubt, the writer having had practical experience on this subject.

The interior arrangement of this small conservatory can be fixed to suit different tastes, but I should prefer any to the usual mode of a straight walk down the centre; for instance, the roof might be additionally supported by three or four slender pillars up which might be trained *Lophospermum*, *Acacia pubescens*, *Cobea scandens*, *Ecchremocarpus scaber* or other beautiful climbing plants, forming festoons of various blossoms under the roof, and if the colors of these are blended with judgment, the effect will be very pleasing; around the base of these pillars should be small stands for three rows in height of pots, to contain early flowers of humble growth, such as Duke Van Thol tulips, the early and very fragrant *Iris persica*, *Oxalis*, double *Heptica*, &c.

Another plan would be to fit up a small stove in the shape of a double hot-bed frame six feet high, six feet wide by eight or ten long, placed in the centre, directly over the boiler in the cellar, the additional heat of which might be conveyed under this frame by simple apertures; the temperature would then be suitable for the succulent tribe, as *Cactus*, *Stapelia*, as well as many other tropical plants, particularly bulbs, from which the low degree of warmth proper for

most green-house plants is hardly sufficient to ensure a luxuriant bloom. The flowers of these are much more durable if removed as they are about to expand into the cooler atmosphere of the greenhouse. I have so decided a partiality for flowers that I say but little on the subject of planting vines in such a house, but those who prefer the rich clusters of grapes to the pendant wreaths or racemes of flowers will find no difficulty in indulging their taste.

Before proceeding to the garden I would make a few remarks on windows, the number of which disfigures many houses, and in truth is perfectly unnecessary.

It has long been known to artists that cross lights or in other words light from all sides of a room completely destroys effect. And a good mechanic will always prefer one direct light on his work to different lights crossing each other. But it was reserved for the scientific men of the present generation to prove by theory what has long been known in practice; it is now clearly understood that two rays of light meeting at varying angles will produce alternately a light and a dark spot, thus accounting for the confusion of light produced by rays crossing each other in various directions. On trial it will be found that one single lofty window, will afford a more pleasant light in a room of the size contemplated in the drawing than two or three on different sides. The piazzas of many houses are formed by a continuation of the roof supported by thick pillars, which give them a heavy appearance; those in the drawing are intended to represent piazzas, with concave roofs formed of painted floor cloth, fastened on slight wooden rafters, cut with the curve desired, then supported by slender pillars connected by wooden arches with open work; such pillars may be quickly encircled by hardy climbing plants, as Boursault rose, Bignonia, Honey-suckle, provided the grass bank around the house be made with a good share of rich compost instead of stone rubbish. Climbing plants, if required to grow well, should have rich earth, as the upper part is always in proportion to the luxuriance of the root.

The cottage is approached by a circular drive; the entrance could not be exhibited in the plan, but it may be judged of from the gate, which should be hung on the other side and is only placed there to make it visible; in front is a grass plot, which should be kept closely mown, and if there is plenty of room one or two ornamental trees may be planted, such as Magnolia, or Liriodendron (tulip tree). The three oval beds may be used for flowers in masses; for instance, that

in the centre for varieties of roses planted at sufficient distance to enable a mixture of the monthly and sanguinea species which have been protected during the winter, thus maintaining a succession; the other compartments, after being decorated by the early Phlox subulata, might be filled with the Scarlet Salvia, or Lobelia splendens, with a narrow border of some blue flowers of low growth, as Campanula speculum (Venus' Looking-glass), or the large blue viola (Heart's-ease), this must however be left to taste. On the right, opposite to the principal chamber window, are three curved beds, each four and a half feet wide, edged with box and divided by narrow walks three or three and half feet in width, for the purpose of permitting examination, intended for choice herbaceous flowers; observing that the tall growing species, as dahlia, lofty delphinium, &c. should be placed in the bed most distant from the house, and those of the lowest growth in front. Here may be a fine collection of Pæonia, Iris, Trigidia, Lychnis fulgens and chalconica, Phloxes, particularly the white, Ornothera, Pentstemon, Liliium flavum, Gentians, with many others; it will add much to their charm if the colors are so blended as to harmonize well; for instance, by bringing the blues and yellows or whites and scarlets into immediate contrast, as may be observed in many striped flowers; those who wish to imbibe true principles of taste will achieve more by observing and studying the forms and arrangements of colors presented by nature, than by any artificial rules that can be offered; this department however may safely be entrusted to the superintendence of the ladies, who naturally possess a finer tact in these matters, and to whom it will prove a constant fund of amusement. In the original formation of these beds great attention should be paid not to have the plants too near each other, for then confusion ensues and it is almost impossible to keep them neat, on which much of their effect depends. Besides, in two or three years many species extend themselves so as to overrun the less vigorous plants; room should also be left to intersperse a few pots of Aloysia citriodora, Heliotropium and other inmates of the green-house. The walk at the back of these beds may be five feet wide, bordered on the right by a low thick shrubbery, with a verge ten inches broad, of grass; this would serve as a protection to the flower beds and be a good boundary to the premises.

This walk might be continued in a serpentine direction on to the vegetable garden behind the house (the entrance to which ought to be concealed by leading round a clump of thick shrubbery), first

branching off to the flower garden immediately at the back of the house; which besides roses may be partly devoted to beds of tulips, ranunculus, anemone, &c. These being necessarily taken up in the late summer months may be replaced by autumnal groups of China Aster, *Convolvulus major*, Marvel of Peru and various other beautiful annuals. *Convolvulus major*, Ipomea and several others are better grown in pots, as they are then less liable to injury by moving. China Aster, and some others may be removed at any time, even when in flower, if well watered for the first three or four days. Marvel of Peru is perennial if treated like the Dahlia; the great object in the flower garden being to keep up a constant glow of beauty by a continued succession of bloom. Proposing to resume this subject in a future communication, I shall not at present touch on the choice of ornamental shrubs, and also merely hint now that if the spot possess the enviable qualification of a stream or even a pond (from the former the latter could easily be formed), the cultivation of the beautiful aquatic and swamp plants of this and other countries would create very considerable additional interest and beauty. The back door of the green-house should open into this garden; outside of this door, on the left, a stage may be erected, concealing the culinary offices, on which to place the green-house plants during the summer.

The entrance on the left will be observed to lead to the stables, partly concealed by trees and shrubbery; this avenue also leads to the vegetable garden and would be used for carting manure, coals, wood, &c., the windows of the kitchens facing that way. J. E. T.

[To be continued.]

[For the Horticultural Register.]

BEST MODE OF DESTROYING CATERPILLARS.

MR FESSENDEN — Is there not some misapprehension in the communication of Mr Ives in the *American Gardener's Magazine*, relative to the Garden and Orchard Caterpillar? Can he mean by that insect, the scourge of our apple trees, and of our wild cherry trees, for the destruction of which Col. Pickering's judicious instrument was intended? If so, the habits of the insect in Essex and in Norfolk are essentially different. I have been familiar with this insect for forty years, and *never* in a single instance, did I discover its

eggs covered by a *leaf*; with me, it deposits eggs in the autumn, at the extremity of the last year's shoots, surrounding the whole shoot, and protected simply by a varnish. This varnish reflected by the rays of the sun enables you to detect it in winter and spring. It is not a *new* discovery, that the proper time of dislodging them is before they are developed. The suggestion was made twenty years since by John Prince, Esq., and I have been in the constant practice of destroying them before the month of May.

I observe that the Pitmaston *white cluster grape* has risen in England to the rank which it deserves. Mr Andrew Thomson and Loudon having recommended it to the public as among the *first seven* for cultivation in the open air in England. I shall be able this year to prove its value, both for *external* cultivation and for *early* and *late forcing*, and in the interim I shall be able to supply all who may be disposed to try it.

JOHN LOWELL.

The Pitmaston White Cluster is a seedling, grown in Yorkshire, hardy, prolific, and producing berries as large as those of the Golden Chasselas. Of its originality there can be no question. Its distinctive characters are as well marked as those which distinguish a melon from a squash.

Remarks by T. G. F.—We are under great obligation to the highly respected author of the above communication, and solicit the continuance of similar favors.

The insect which Mr Ives in the Gardener's Magazine denominates the "Moth of the orchard, or garden caterpillar," and represents as having been found on "trees speckled with occasional dead leaves, adhering to the branches so firmly as to require considerable force to dislodge them," does not exactly coincide with that which is thus described by Dr T. W. HARRIS in a *discourse* delivered before the Mass. Hort. Soc. "The caterpillars of the apple tree, which are hatched from those *curious ring like clusters of eggs surrounding the young twigs*, are, as you well know, furnished with jaws, and devour the leaves of this tree. They have also sixteen legs, and in crawling from leaf to leaf, and branch to branch, spin from their lips a delicate thread, which is a clue to conduct them back to the shelter of their many-coated, silken tents. From the first to the middle of June they descend from the trees, and seclude themselves in various hiding places. Each one then weaves round its body a small silken shroud or cocoon, fills the meshes with a yellowish powder, slips off and

packs in one end of its case its old coat, and appears in a new form, that of a brown chrysalis, or pupa devoid of prominent legs and wings. Sixteen days afterwards the pupa skin is rent, a moth* issues from it, ejects from its mouth a quantity of liquid matter to soften the end of its cocoon, and then forces its way out. In the moth state it is furnished with a very short tongue, and subsists only on the honey and dew of plants."

Not only John Prince, Esq., but many others have urged the expediency of attacking orchard caterpillars in the egg-state. A number of writers for the N. E. Farmer, have, from time to time, advised that mode of effecting their destruction. Among others, "*A Farmer*" says, "Now is the time [August] to destroy caterpillars. The eggs, from which they are produced are now to be found in bunches on the twigs of fruit trees. By taking off these bunches, the vermin are now destroyed in the egg. The color of the bunches is now so much darker than the bark of the twig that they are easily found; it will, by degrees, become lighter, until it will be very nearly the color of the bark. The eggs are laid in July. They remain where laid, unaffected by any change of weather, by frost or heat until spring, when they are hatched by the flowing of the sap, and the vegetative power of the twig. Each bunch of eggs will produce a swarm of caterpillars that will have a nest by themselves. The nest is usually built on the branch that bore the twig on which the eggs were laid.

As caterpillars have no disposition to leave the tree, on which they were hatched, until the time when they leave their nest and separate to come together no more, it is very easy to keep small trees from their nests by destroying the eggs.

I found the first week in July this year, [1831,] that many bunches of eggs were then laid on my peach trees, and small apple trees. I have since taken from those trees more than five times the number of bunches of eggs that I have ever before seen on such trees in one year. If in other places such quantities of eggs are laid as were on my trees, and they be not destroyed before hatching, the caterpillars, next spring, will eat all before them, in spite of all opposition.

Mr Francis Richardson, of Chelmsford, Mass. asserts that "The only effectual way to extirpate caterpillars that I ever found, is to find the eggs, and destroy them, which may be easily done," &c. Thacher's Orchardist likewise observes, "The eggs from which cater-

* *Bombyx castrensis*. L.

pillars are produced, are attached in clusters to the small twigs by a brownish colored miller in the month of August, and are securely covered with a gummy substance, unsusceptible of injury by the weather during winter," &c. Indeed it has long been known that the easiest and most effectual way of getting rid of caterpillars is to destroy their eggs. This fact, however, though known and practised on by individuals, is not perhaps sufficiently diffused to induce all the benefits which might result from its being more frequently repeated in publications devoted to the interests of cultivators.

It is possible that the caterpillar of Mr Ives is the insect, which Dr Harris has described in the following article.

"The autumnal caterpillar, or, as it is commonly called, *web-worm*, has made its appearance in great numbers. Not only our forest and ornamental trees, but our fruit trees are disfigured with their webs. The eggs are deposited on the extremity of a branch. The young larvæ, when hatched (which happens from the last of June till the middle of August, some broods being early, others late,) *cover the upper surface of the leaf with a web*, beneath which they feed in company, devouring only the upper cuticle and parenchyma of the leaf, leaving the lower cuticle and nervures untouched. As they increase in size, they progressively extend their web downwards, till, eventually, it covers a large portion of the branch,"* &c. Here, it seems the web of the insect covers the upper surface of the leaf instead of the leaf's covering the eggs of the insect. We shall therefore not venture to assert that the web-worm and caterpillar of Mr Ives are identical, but as they both appear to be *weavers* it is not improbable that they are both of the same species.

ON THE COMMON AND BOTANICAL NAMES OF PLANTS AND FLOWERS.

THE usual inquiry for the common name of a flower when the botanical name is offered, and the numerous hints given that a pure scientific publication would not meet the demand of the public on subjects in this department of amusing knowledge, seem to render a few explanatory remarks necessary in a periodical of the nature of

* See *New England Farmer*, vol. vii. p. 33, 34.

the Horticultural Register, which aims at and is daily progressing towards an extensive circulation. This demand for the common name of a flower is so natural that a botanist after sharply replying to it, that where a flower is first gathered in uninhabitable forests there could be no common name, intimating by tone his idea of the dulness in the querist, has been known to turn to an entomologist who was exhibiting a new beetle and ask for its popular name.

The origin of this confusion of botanical and common appellations is as ancient as the confusion of tongues at Babel ; it is indeed from the endeavor to rectify this consequence of man's ambitious wickedness that all our trouble arises. For the scientific discoverer of a plant, in order to give a name which will be understood by his brother botanists of all nations and languages, conveying to them at the same time some idea of its appearance and properties, compounds one of Greek or Latin, which are more universally understood throughout the world than any other language ; should it have been found in extensive uninhabited plains or vast forests, this remains its only name. Even if he find it in a well peopled spot, where its medicinal or other qualities, have acquired for it an appellation from the inhabitants, he would still confer upon it a new title, but would also add to his communication that current in the district where he gathered the specimens. Another very obvious reason exists for this proceeding. The same plants grow wild in different and very distant countries, and also in large districts of the same country ; a flower of striking appearance or a plant of wonderful properties would then acquire a distinct name in each language, district, nay, even village, and thus its numerous common titles be sufficient to puzzle the most retentive memory. I may cite as examples the *Epigea repens*, a beautiful flower which fills the air with its fragrance in the month of May ; it grows plentifully around Cape Cod and is there called May flower ; in Bigelow's *Florula Bostoniensis* its common name is Ground Laurel, and I have heard a different name from another district. The *Mirabilis jalapa*, called Marvel of Peru in England, is here called Four o'clock, and the *Convolvulus major*, Morning Glory. I do not quarrel with these common names, for they are usually well applied and convey to the mind some tangible idea of the flowers ; but I wish to shew to the inquirer that the general adoption of them would be impossible, and create considerable confusion, and the system of giving one name to a plant by which it may be known to persons of all nations and languages is preferable,

although it may at first appear more difficult to retain in the memory. And this indeed is only in appearance, for where is the difference in point of mere mechanical difficulty in learning *Epigea repens*, or *May flower* or *ground laurel*, particularly if the plant is once seen creeping on the ground and the idea is attained that *repens* means creeping. There is likewise a great fallacy in the opinion that scientific names are difficult to acquire, and that their number must create confusion in the mind. Present the dictionary of a foreign language to any one with an intimation that he has to learn all the words contained in it, he will start back and deem it impossible; but shew him a chair and tell him it is called in French *une chaise*, a house *une maison*, and so on until he has gradually attained a good knowledge of the language, he will laugh at his former idea of an impossibility. So with botany, if it is attempted to cram a whole dictionary of names and terms into the head at once, the result will be confusion and disappointment; but if like the bee we pass from flower to flower and extract the honey of knowledge, by examination of their habits and structure, the name of each individual will be so closely associated with the plants, that it will readily be suggested to the mind every time it is seen, and by degrees a knowledge of the whole vegetable world may be acquired. Botany is not a science to be learned by intense study in the closet, or by committing to the memory whole pages of terms, but rather by the healthy recreation of cultivating, seeking, handling, examining specimens and by comparing them with descriptions published.

A curious illustration of the subject of this article is offered in a work of three large quarto volumes published last century by Don F. Hernandez, physician and historiographer to Philip II. of Spain. It is a description in Latin of the indigenous plants of New Spain, (South America), then entirely under the Spanish dominion. They are designated only by the common names they bore in the country. Thus in volume 1st, page 237, is a chapter on the Cozticzacatzacuxochitl, or the herbaceous yellow flowering Tzacuaxochitl; same volume, page 245, on the Tequanitzitlicaztli, or the pungent urtica (nettle); volume 3d, page 58, is a chapter on the Pipitzahoacxihpatlahoac, and the Hoitzia, a Mexican plant, the flowers of which have been frequently exhibited at the Horticultural Society's rooms from the green-house of Messrs Winship and others, may be there found under the appellation of Hoitzitzilxochitl. These examples will probably be sufficient to satisfy any reasonable person that the

botanical are not *always* more difficult to remember than the common names of plants. It is atmost needless to add that the above work being without plates is more curious than useful. The alteration of long established names has frequently raised the ire not only of beginners in botany but also of those farther advanced in the science, and it must be confessed that attempts of this nature have often been made without sufficient reason; but a few instances will shew that the numerous discoveries and improvements of late years in botanical knowledge have enabled the professors of it to discriminate between plants formerly classed together and to establish such marked differences as to entitle them to distinct names. Where these are well defined and clear, such new names, however vexatious it may seem, should always be adopted. For instance, the *Cydonia japonica*, when first introduced from China, was supposed to belong to the apple tribe, *Pyrus* (the apple is *Pyrus malus*), and was for years called *Pyrus japonica*, until the plant being old enough to bear fruit, this fruit was found to belong to the quince tribe, (*Cydonia*,) hence an alteration to *Cydonia japonica* became proper. A yellow flower, still commonly known here as *Corchorus japonicus*, was originally brought from China as it grows now, double; being destitute of stamens, pistil or seed vessels, for some time it puzzled the botanists to ascertain the tribe to which it belonged. It was at length thought most to resemble the *Corchorus* and received that appellation. Some years afterwards however, Mr Barclay of Bury Hill, England, succeeded in importing a plant with single flowers; it was then discovered to be quite different from *Corchorus*, and was named *Kerria* by the celebrated botanist Sir James E. Smith, who examined it scientifically; it will probably, however wrongfully, retain its original title *Corchorus* for some time, as the other flower of the same name has no beauty and is not likely to become much known, although the distinction is quite marked. Numerous other instances might be adduced, but these are sufficient for the purpose.

Having been several times questioned as to what is meant by florists' flowers, I would state that a florist, in its narrow technical meaning, is one who cultivates individual flowers for the purpose of rendering them large and double, as with the dahlia, pink, carnation, &c., or for varying and increasing the splendor of their colors, as with the tulip, auricula, &c. These are hence denominated florists' flowers. This is effected by particular manures or management in various ways, and the success which has attended these efforts is truly surprising and instructive even to those who study scientifically

the laws which govern the functions of vegetable life. In the meantime however, the canons of the floral law of beauty which rule in florists' societies are as different from those which are deemed the criterion of beauty and order by botanists as can well be imagined.

Notwithstanding the foregoing reasoning, however, it must be conceded that the number and novelty of botanic names will to a certain extent inspire a kind of awe in beginners. Those therefore who write popular essays or offer public lectures on subjects of science will always succeed in arresting attention in proportion as they possess the rare but useful talent of temporarily unlearning themselves, (if I may be allowed the expression to designate the ability of dismissing from the mind scientific terms to them as familiar as daylight,) and begin by exhibiting to the reader or audience the earliest tracings of knowledge on their own minds, leading clearly and distinctly through the intermediate shades of their own progress from perfect ignorance to their present attainments. Thus like the rising sun gradually increasing in light until they manifest the meridian splendor of science, instead of flashing before the unaccustomed eye of beginners the glare of high sounding terms, which then only serve to dazzle and confound, or to excite admiration of the brilliancy not solidity of the lecturer or writer's acquirements. J. E. T.

[For the Horticultural Register.]

ON FORCING THE CHERRY.

BY EDWARD SAYERS.

[Concluded from page 100.]

GENERAL OBSERVATIONS AND REMARKS.

IN perusing Loudon's Encyclopædia of Gardening, which I have before me, I perceive that the method of forcing the cherry recommended by Abercrombie, Nichol and others, is entirely different in one principle which I have been accustomed to, and found to answer a good purpose, namely, in the temperature of the house when in the process of forcing. From actual experience I cannot agree with the very moderate and even temperature of heat recommended by those authors, as I know not of any fruit that will bear a greater variation of heat than the cherry: nor, on the contrary, that is sooner destroyed in its infant state, by a condensed heated air arising from the heat of flues

or fermentation, either in a high or low degree. The cherry in the act of forcing will endure a variation of heat with *air* from 36° to 75° without injury within the space of five hours, at a time when the sun shines strongly on the house. By observation it will be seen, that the cherry when in flower and fruit in its natural state endures many changes, as its earliness often exposes it to frost, which it endures, and if planted against a south brick-wall, where the sun has great influence, I never perceived any injury received in such location, but always an earlier and better flavored produce than from trees of the same variety in a different situation.

So far as my experience and observation has been, I have never been convinced of any proof of the cherry being lost, in the process of forcing, either by *heat* or *cold*. But by a confined internal *air* or gas not being rectified by the external *air* being admitted into the house.

In order to illustrate this fact it will be proper to give some practical remarks. In the first place, the benefit of night *air*, and the second, in change of heat to correspond with the external air. The indispensable utility of air, and especially night air, was proved by the following accidental fact, at the Royal Gardens, H. C. (Eng.) about the year 1820, by exposing several cherry trees in pots, from the houses which were considered as useless, they having lost the principal part of their blossoms in the process of forcing, while in the act of setting their fruit. The weather at that period being unusually *mild*, the *fruit*, which was in a sickly state, that was left on the tree, *set*, and appeared in a healthy state; in consequence of which, some of the trees thus *cast* were actually taken again into the house and forced to a very good advantage. Hence, it was an evidence of the utility of atmospheric air to the cherry in the process of forcing; but it was also found that too great a depressing of *heat* in sunny weather was not congenial to it, especially, at a time when in blossom or setting the fruit. Therefore, the method was adopted and afterwards followed, of varying the air or heat of the house according to the external air; on fine sunny days the house was allowed to run to 70° or 75° of heat, with plenty of air given, and the fires kept moderately going in order to mollify the harsh external air as it entered the house, and keep a glowing heat by day. When little sun appeared, very moderate fires were kept, and a small portion of air given to keep the temperature down to 45° or 50° to correspond with the external climate. And every caution was taken to vary with, according to the nature of the weather, so as to admit at all times external air.

In dull foggy weather, the syringe was not applied in any state of the process. But the bottom of the house was sprinkled in order to keep a moist fresh internal *air*, as a harsh heat was found to throw the fruit into their infant state immediately.

To the above may be added that the house was always kept clean, and often fumigated with tobacco, to keep down the red-spider, green fly and many insects detrimental to the cherry.

THE CHERRY HOUSE.

The cherry in either of the before mentioned methods, may be forced the first year of planting, although authors do not agree to this principle. Practice has fully convinced me that a crop of cherries may be obtained from well selected trees the first year of planting, without the least detriment to them in any degree whatever.

Management of the House. It would be needless for me to fill your pages, concerning the pruning and training the cherry, which may be done by simply cutting out the water shoots, cross branches and the like, and keeping the trees in a regular healthy manner. The training of the cherry in the hot-house, I cannot recommend in any manner. Previous to the operation of forcing, the trees may be well cleansed by means of soft soap and a sponge, the soft soap being made into a decoction by warm water and applied by the sponge.

The operation of forcing may be begun any time after the last week of January, by first keeping the house moderately close by day, and giving a little fire by night, so that the house is kept barely from freezing. The soil in the house (if the trees are planted in the ground,) will require to be well worked with a fork, and raked neatly, and a quantity of well rotted manure worked into the border every year after the first season of planting. The temperature of the house may be gradually raised from 36° to 40° of a night, fire heat; and from 50° to 60° sun heat, but no higher until the blossom buds begin to break, as the cherry requires to be broke in a strong vigorous state. The syringe will require to be applied every morning, an hour after sunrise (wet foggy days excepted), and evenings after very warm dry days; and the house should be in every way kept clean and wholesome, which should always be a grand object of the forcer; as it will be recollected that the leaves of trees and plants imbibe the surrounding *air* they live in, therefore, the nature of it should be such as to be conducive to health; and perhaps nothing is more injurious to vegetation in a confined state, than vegetable matter undergoing a state of putrefaction.

When the buds begin to expand, air must be admitted at every opportunity of a day, and the sashes may be left at the hot end of the house so as to admit air in the evening, and of mild nights a small portion of air may be left all night; but care must be taken not to leave too much, to chill the house, that the air is brought down to a very low degree, which injures the cherry in this state of growth. In fine sunny days the house may be allowed to run to 65° or 70° of heat with plenty of air, which may be admitted by keeping a gentle internal heat in the flues, by which the external air will be mollified as it enters the house. The house, at night, may be kept as near as possible in this stage to 45° of fire heat.

Treatment of the house in flower. When the trees begin to flower, the syringe is then to be suspended; but, the bottom of the house may be sprinkled with water, and all parts of it refreshed with moisture, to cause a moist internal air. External air must be admitted at every favorable opportunity, and as freely as possible be circulated through the house in every part by opening the front sashes and giving air in every department of the house.

A free circulation of air should always be admitted in the cherry house when in flower, in order to set the fruit or stone of the cherry, as it is rarely seen that cherries, peaches or the like are destitute of their stones or seed; although, the cucumber, which is more strictly attended to than any fruit I am acquainted with, by the application of male flower to the female, is often found without a perfect seed, and most generally the finest fruit or pulp are the most destitute of their proper seed; but this cannot be said of the cherry, and hence the utility of setting the fruit is very evident, which is greatly facilitated by the motion of external air. From this the utility of the admission of air is evidently clear.

The temperature of the house at this period, should never be allowed to run above 45° or 50° at the most of *fire* heat in the night. The *sun* heat may be regulated according to the weather, allowing the glass always to rise much higher of fine days with plenty of air.

Setting the Fruit. During the process of setting the fruit, the house will require to be kept very moderate, and as pure an internal air as possible must be continued by admitting it at every opportunity, and night air must be admitted in mild evenings and a small portion at night be left open over the hot end of the house. The trees should be attended to in watering at their roots, which is very essential at this period. When the fruit is beginning to show from the receptacle, the

syringe may again be regularly applied of a morning and fine evening, and fumigation also to keep down the red-spider, green fly and the many insects with which the cherry is liable to be infected. The temperature of the house may be a little raised at this period, but care must be taken that the fire heat of a night does not exceed 50° at any time until the process of stoning is over.

Stoning the Fruit. When the cherry is undergoing the process of stoning, the syringe may then in a measure be suspended, the fruit in this state being partly on a stand, does not require so much moisture applied to it as heretofore. The house at this time will require to be well aired of a day, and a small portion of *air* should be left of a night at every opportunity in mild weather.

Stagnant internal air at this period, if long continued, will eventually destroy the whole crop. The heat should now be kept as regular as possible of a night from 45° to 50° and of a day from 60° to 75°, with plenty of air, varying according to the external temperature as before recommended. When the fruit has perfected its stoning, which may be ascertained by pricking it with a pin, the syringe may then be more generally applied, and the heat gradually raised from 50° to 60° *fire heat*, of a night, and from 60° to 80° of a day, *sun heat* with air; the pots or plants should be often at this time well watered, which the cherry requires in swelling the fruit when in the process of forcing.

Ripening the Fruit. When the fruit begins to color, the syringe must then be suspended, and the house kept dry; wet not only spoils the flavor and quality of the cherry, but also disfigures it by cracking the fruit. Every precaution must be taken at this time to give plenty of air by day, to give flavor to the fruit; and the house may be kept closer of a night to forward the process of ripening.

The plants in pots may be moderately watered in ripening the fruit, but care must be taken that they are not overwatered when nearly ripe, which will spoil their flavor.

After management of the Cherry. When the fruit is all ripened and gathered, the trees may be fully exposed by taking the sashes from the house if the trees are planted in the ground; if in pots, the pots may be taken out of the house and placed in a northern situation to ripen their wood, previous to their being replanted or again forced in the proper season.

The only variety of cherry that I have seen introduced into the forcing department is the *May Duke*, therefore, cannot recommend any other either from practice or *observation*.

WALTON HALL.

WE believe no apology will be requisite for introducing into the Horticultural Register, the following beautiful account of Walton Hall, England, the seat of Charles Waterton, Esq. whose name will ever live in the breasts of all lovers of natural history, and whose "Wanderings in South America," if not scientific, are highly entertaining, and apparently the effusions of a most benevolent spirit and a heart almost without guile.

It is from the pen of James Stuart Menteach, Esq. of Closeburn Hall, with the exception of the first paragraphs, and has already appeared in a new monthly periodical from London, called the Sportsman, which will not perhaps at first attain much circulation here.

J. E. T.

Walton Park consists of two hundred and sixty acres, surrounded by a wall from nine to ten feet high; there is no public road or foot-path through it, and no gun is allowed on any account to be fired in it. The Park abounds with fine timber, and Mr Waterton in laying out some new grounds about twentysix years ago, did everything that love for birds could suggest, to make them come and settle there. This protection to the birds, enables them to perform their daily functions without fear and trembling. In the centre of the Park is a sheet of water twentyfour acres in extent, upon which in winter from two to three thousand wild fowl may sometimes be seen. In the lake is a rock, and on this rock stands Walton Hall, now a modern building, but in times long gone by a place of strength.

"The birds

Securely there they build, and there

Securely hatch their young."

Walton Hall, a place that must like Selborne, be ever dear to the lovers of ornithology, from the many attractive objects it presents in the way of that engaging pursuit, is situated in the parish of Sandal Magna, about four miles from Wakefield, in the county of Yorkshire. This district of country forms part of the great coal formation of Yorkshire. The soil usually overlying the coal stratification is a clay, which being of a stiff tenacious texture, is unfriendly to the better sorts of herbage, unless it be extensively drained and well mixed with calcined limestone, but the clayey soil of the park at Walton,

rests immediately upon a thick stratum of the coal sandstone, which mouldering down, yields it a due proportion of siliceous earth, and makes it an excellent soil for the growth of the richer species of grasses. Trees of nearly all kinds flourish luxuriantly upon it. Among these, especially the Sweet Spanish Chesnut, one of our most valuable trees, and in the present day, far too little encouraged as forest timber, is this year profusely laden with fruit not much inferior to that imported from the South of Europe. The climate is equally favorable with the soil for the growth of the delicate kinds of vegetation — the vine grows on the walls in the open air, and scarcely ever fails to bear each season tolerable grapes; the Sweet-water and the black Hamburg are the only varieties that have been cultivated.

Walton Hall stands upon an Island included in a small lake, well stocked with fish, and has been the residence of the Watertons time out of mind. The present elegant Grecian mansion occupies the site of an ancient castellated house, which encircled by water, and accessible only by a drawbridge, must have been before the use of cannon an impregnable strong hold. During the civil wars of Cromwell and Charles I. this family, staunch adherents to the house of Stuart, defied Old Noll's vengeance, and gallantly kept his forces at bay some time, although the venerable castle was reduced almost to a heap of ruins. All that now remains to tell the tale of its former chivalry, is an ivy clad tower. The tower will be visited with no small interest and curiosity by the ornithologist. The days of rapine and violence have passed away, never we hope to return; this tower, by many ingenious devices and contrivances, has been made a commodious and undisturbed habitation for many a family of the feathered race. In a snug corner thickly overgrown with ivy, can be seen any day in the year, a pair of common white owls taking their nap; and at night, the ears of the admirers of such music, may enjoy their nocturnal serenades.

“From yonder ivy mantled tower
The moping owl does to the moon complain,
Of such as wandering near her secret bower,
Molest her ancient solitary reign.”

During the breeding season, this industrious couple may be overlooked from the windows of the hall, as they flit to and fro to cater for their young family. Though the owl finds in this tower an unmolested haunt, the pretty starling, the blackbird, the thrush, the wild duck, the wood pigeon, “sweet sequestered bird,” and several others,

reposing confidence in the humane owner, which is never abused, resort to this delightful retreat either to enjoy its shelter or rear their young. Leaving the venerable tower and its inhabitants to enjoy that quiet which nothing disturbs, let us enter into the hospitable mansion. Its doors are ever open to the poorest visitor, who craves a view of its rare and curious collection of objects of natural history, and nothing is allowed to be offered to any domestic who attends; in this Mr Waterton sets a noble example to others, who suffer their servants to receive money.

Among the choice rarities of this collection, none are more interesting than the birds.

“ Their plumage, neither dashing shower
Nor blast that shakes the dripping bower,
Shall drench again or discompose,
But screen'd from every storm that blows
It boasts a splendor ever new,
Safe with”

the amiable wanderer, who often at the hazard of his life, and suffering dangers by land and water, while exploring the wilds of South America, got them together. The fierce ill looking cayman or crocodile, on whose back Mr Waterton fearlessly mounted, while his men were dragging the monster of the deep from his native element, the snake of gigantic size, which nearly cost the intrepid traveller his life, when he grappled with it, splendidly plumaged birds, and numerous other animals, are seen, preserved in such a manner as to give them the appearance of life, which can be seen in no other museum of natural history.

Among these interesting objects, none arrest the observer more than the “Nondescript” animal, concerning which so much has been affirmed only from conjecture. Under what genus it is to be classed, Mr Waterton best knows; as he has not yet disclosed it. Only one individual has been intrusted with its habits, manners and character.

On leaving the house, its island and its old ivied tower, we next enter the Park. This piece of ground embraces nearly three hundred acres, surrounded by a high wall to keep off poachers and other intruders. As no gun is ever fired within its precincts, that

“ Clamor of rooks, daws and kites
The explosion of the levell'd tube excites”

is never heard, nor any day suffered to disturb its peace, it may easily be supposed it will be the favorite resort of many birds. Abounding in extensive woods and groves, and an ample space of water, every fowl can suit its own taste for a sheltering place, for a haunt to build its nest and rear its little brood; all those birds which elsewhere suffer from the gamekeeper's ruthless gun and traps, receive protection within the walls of Walton Park. The owl is an especial favorite. Besides our two slumbering friends, whom we left in the old ivied tower in the island, eleven pairs of others occupy holes in trees and other comfortable dormitories, purposely contrived and fitted up for their dwelling places.

The rapacious birds also find a home in Walton Park and a friend in its proprietor. The raven is now and then seen, though but rarely, as the hand of the enemy has fallen heavily upon this noble bird. Great flights of the carrion crow may be seen repairing from all directions to their roosting places in its woods; and magpies in equal numbers taking up in them their sleeping quarters; different varieties of hawks resort for the same purpose, and here their "aeries build."

Some might suppose from the presence of so many birds of prey that no game would be found in the Park; it is quite the reverse. In 1833 a wood-pigeon built in a tree four feet below a magpie, both lived in perfect harmony, hatched their eggs and reared their young. Many similar instances might be adduced. The pheasant, partridge, woodcock in their season, and the hare are very numerous. Were it not for the shelter they meet within the walls of Walton Park, Mr Waterton believes that they would ere this have been rooted out of this district of the country, as some species of birds, such as the larger variety of woodpecker and others have been. The pheasant receives every attention — except for about four months of the year, he can provide himself with food by living upon the beech mast, the sweet chesnut, acorns and other sorts of food. To provide him with winter provision, Mr Waterton plants a quarter of an acre with the thousand headed cabbage which is sown in April and transplanted in June; this the pheasant eats voraciously in winter time. Beans are preferred to any kind of grain as being less pilfered by the smaller birds.

The grasshopper,

"Saltitans per herbas
Œstatis est chorista,"

whose sweet summer song was unceasingly heard, is now almost silent; this insect is a dainty repast of the pheasant.

Though the park has not been above two or three years quite inclosed by high walls, its complete privacy and security have attracted a small family of herons to form a colony on some of the aged oaks that overhang the lake; this year there have been four nests, all which have been hatched, and some able-bodied youngsters have been sent out to swell the rising population of heronry. The herons repay their kind landlord's assiduous care of them, by destroying numbers of the water rat that infest all waters and even houses.

Being on the verge of that range of country which the nightingale visits in its annual migration, Walton Park has generally the enjoyment of the mellifluous notes of one or two of these heavenly musicians who each

" In his ev'ning bow'r
 Makes woodland echoes ring,
 * * * *
 And sings the drowsy day to rest."

When the season of the sere and yellow leaf draws on, the migratory birds all knowing the moment when to forsake for a time their loved homes, flock into Walton Park as a place of refuge after their long voyage. Among this assemblage are seen the wood-cock, the field-fare, with its inseparable dear fellow traveller the red start, and several other emigrants from distant lands.

Such are the daily and occasional inhabitants of the woods and groves of Walton Park. Notwithstanding several pairs of wood-pigeons breed in the confines of the estate, when the winter sets in immense numbers flock there to feed on the beech mast. These appear to have come from foreign countries.

If the land birds of all kinds and dispositions receive an invitation, and find a true friend in Mr Waterton, no less so do the water birds, and that most beautiful of all the British birds the king-fisher, which may be considered as the link which unites these two classes together.

The lake abounding in a variety of fish, which we have described as encircling Walton Hall, is the continual and occasional resort of many of our water fowl.

The wild duck, the widgeon, the teal and the coot are seen on its pleasant waters in great numbers. The wild duck is a continual inhabitant of the lake. Several pairs hatch and bring up their young, but during the winter season great flocks of them migrating from the frozen north, as well as of the widgeon and teal pass the inclement season here.

Though the wild ducks are seen on the waters in the day time, at night fall they repair to the sea side, the shores of which are distant nearly a hundred miles, for their supper; and by return of dawn these active travellers, far surpassing in speed of wing the rapidly moving locomotive steam engine, are seen on the bosom of the lake quietly pruning and careening their plumage. The widgeon, feeding like geese on the grasses and aquatic plants, does not go so far for his nightly meal — if, however, he be undisturbed he will feed during the day.

Not unfrequently the wild goose and wild swan take up their abode in severe weather on the lake.

The sea-mew is also not an unfrequent visiter; the abundance of eels and other fish tempt the voracious cormorant to leave the stormy ocean and pass his winter pleasantly at Walton. This bird usually travels with his mate, and it is interesting to observe this loving couple, an example of conjugal affection to human kind, fishing and diving in company. Tired with the sports of the deep, they often rest themselves from their labors on its pretty shores within gunshot of the hall.

An instance of the humane and paternal care and solicitude Mr Waterton evinces for the comfort of the feathered family during winter had nearly escaped me. He encourages the growth of ivy round the stems of his trees, which not only shelters many a poor benumbed bird when the storm rages, but also offers it an agreeable place for its nest in the spring.

From these few and hastily collected observations while visiting Walton Hall, it will appear that Mr Waterton possesses the finest Zoological garden in the kingdom, or perhaps in Europe. Here roaming unconstrained and at free liberty, every bird and animal can be examined in its true character.

In possession of a powerful telescope, which is often used, Mr Waterton watches and examines the habits and movements of his varied feathered population. Almost constantly abroad, nothing escapes him. The perfect seclusion of the Park enables him to experiment harmlessly on his subjects. In the spring of 1833, he made a carrion crow hatch two rook's eggs, a magpie those of a jackdaw, and the daw those of the pie.

In concluding these very imperfect remarks on Walton Hall, I am sure that every one who like myself has shared the hospitality and enjoyment of a visit to this second White of Selborne, will join with me in the words of the Latin poet,

“ Hinc tibi copia
 Manabit ad plenum benigno
 Ruris honorum opulenta cornu.”

Here to thee shall plenty flow
 And all her riches shew
 To raise the honor of the quiet plain.

ON BLANCHING VEGETABLES.

THIS is a part of the art of gardening which ought to receive much more attention than is usually bestowed upon it in this section of the country, as will be evident from a consideration of the great change, I should rather say amelioration produced by it in vegetables intended to be eaten either crude or after being cooked.

The Lettuce, (*Latuca sativa*,) in its wild uncultivated state contains a juice whose properties are highly poisonous, and from which a concrete substance like opium has been extracted. The bitter qualities of the endive, although not quite so poisonous, are still very deleterious, and the Celery, (*Apium graveolens*,) growing in its native wet localities is a most active poison, while the Sea kale, (*Crambe maritimæ*,) without artificial cultivation is exceedingly nauseous to the taste, and totally uneatable by man or beast; few people would relish the cabbage tribe were it not for the tender delicious blanched heart.

The philosophy of the operation seems to be nearly this; the juice is sucked out of the earth by the roots of a plant, and rises from them through the vessels of the stem into the leaves. In circulating through the leaves a large quantity of its water is evaporated; it is thus highly concentrated, and at the same time acted upon in a way not quite understood, by the air and the light, which action converts it into a juice containing the peculiar properties distinguishing each plant; this returns to the root considerably diminished, after having passed through various secretions by glands, &c., supplying every part with what is necessary for growth, stability, inflorescence, maturity of fruit and seed. What remains is probably useless and is thrown off from the roots by vessels destined for that purpose. Now blanching is depriving the plants entirely of the influence of light and partly of that of air, by covering them up closely in various ways; the consequence is that the juices of the earth rise into the leaves

and there undergo scarcely any conversion either into the natural acrid and poisonous qualities of the plant, or into tough stringy fibre, but it becomes wholesome, tender and refreshing to the palate.

I have given this slight outline of what appears to me the probable proceeding of nature, not only because I entertain a great opinion of gardeners in general as thinking men, to whom it must be agreeable to understand the theory as well as the practice of their operations, so as not to be mere machines, but also because some mistakes are made on this subject which a little reasoning may correct.

Blanching is useful therefore, either to destroy entirely, or considerably to weaken the strong and injurious juices of plants, and to prevent the fibres from attaining that state which renders them strong and stringy; but it never can be desirable where these juices are already delicate in flavor and perfectly innocent in their mature state, or where the vegetable is eaten when just rising from the earth in its youngest and tender state. Thus many take considerable pains to blanch the stems of the pie rhubarb, (*Rheum rhabonticum*,) and when brought to table, true it is of a fine white color and not stringy, but very insipid, no more to be compared with that grown naturally than a turnip is to a Ribstone pippin. It is a custom in many parts of Germany, and I believe also in Spain, to blanch asparagus, by placing a piece of cane pole or hollow tube over the heads as soon as they can be discovered; they are thus deprived of light and grow very brittle, tender and white. Now the ripened juices of this vegetable are considered rather wholesome than otherwise, and certainly the flavor is seldom overpowering. I have never tasted it blanched, but have dined with gentlemen from Germany who refused to eat it because it was not quite white. The *Asclepias syriaca*, mentioned as an esculent in the elaborate and valuable communication from the Hon. H. A. S. Dearborn, in the last number of the Horticultural Register, would probably be preferable blanched, as the juice when mature is of a very strong nature. I shall certainly try it if I can procure plants or seeds this spring, although this paper states it is to be eaten in its states of young shoots.

The Cos lettuce, being naturally of an upright growth, is best blanched by tying the leaves together with bass about an inch and a half from the top, and then placing a pot over them; but it is almost impossible to grow this sort well during the summer, as the hot sun forces it into seed before the heart has time to come to

perfection. However, plants brought forward by glass and planted out beginning of May would probably do better. The Imperial and other large round lettuce common here, which grow closer to the ground, whose nature it is to turn their young leaves inwards, or cabbage as it is technically termed, as well as low growing Endives, are considerably improved by covering to exclude the light either with garden pots, the holes of which should be carefully stopped, or with shallow wooden boxes well puttied in the crevices, old fig drums, &c. Endive will do well with a piece of slate or tile laid flat on it; from seven to ten days are sufficient to blanch this tribe of esculents; they should be frequently looked at after five or six days, as the leaves become very delicate and are liable to decay soon after they are in perfection. The afternoon of a dry day should be chosen for first putting on these coverings, which must be pressed a little into the surrounding earth. The drier the plant is throughout the operation the less liable it is to rot. Those who raise lettuce under glass, for early sale, would certainly render them more delicate and beautiful by covering with garden pots five to eight days previous to cutting.

The plant which would probably be most benefitted by blanching is the Dandelion, (*Leontodon taraxacum*,) for the purpose of using as an early spring salad. A cultivator informed me that he had grown single plants of a size nearly to fill a peck basket. This when blanched is of a beautiful light golden yellow, tender, juicy, with a very slight bitter taste. Much has been written on the beneficial virtues of this vegetable, and sure I am that they have by no means been exaggerated. Now it appears to me that the wholesome bitter of this, mixed with the gentle warmth of the common mustard would make a salad very grateful to the palate, and assist in restoring the healthy tone of the digestive powers, weakened, perhaps, by want of exercise, during a long winter, or by the diminution of those exudations from the skin, so requisite to health. A slight digression may be permitted, on the subject of growing the mustard above mentioned, so as to have it always clean and tender. Make a bed the size you wish, of pretty rich earth; let it be well pulverized on the top, and water it considerably with a fine pierced rose to the watering pot. Then sow the seed rather thick, as lightly and evenly on the surface as possible; water again very gently. Do not strew any earth over the seed, but cover it with a Russia mat, kept from blowing off with stones, or better, by wooden pins, at the corners. If the

weather is warm and favorable, in seven or eight days you will have a fine crop, which may be easily cut without any admixture of earth. This alone is generally considered an extremely wholesome spring salad if not rendered too acid by vinegar. The mustard should never be allowed to come into second leaf before it is gathered, as it then tastes too strong and coarse.

Celery is naturally blanched by the only method of cultivation pursued, that is, earthing up, and therefore requires no remarks at present.

As I have no doubt that the consumption of Sea-kale will considerably increase in this country as it becomes more known, and the palate is more accustomed to it, the remainder of the article will be devoted to this vegetable, although it must be difficult to add much that is new or valuable to any subject which has engaged the able pen of one who so truly combines the theory and practice of horticulture as Hon. John Lowell, of Roxbury. The sea-kale, for several years after its introduction as an esculent, was commonly blanched by being covered with coal ashes sifted fine for that purpose. This caused it to require much cleansing before it could be served at table. At length it was found that a common garden pot inverted over it, would perform the same service without the disagreeable consequence. Finally this method obtained so universally that pots of a large size were manufactured on purpose, with an aperture large enough for the insertion and motion of the arm to cut the crop, and a cover fitting quite close with a flange. This pot when once fixed firmly in the earth does not require moving until all is cut that is desirable, which as the plant throws up heads in succession, like asparagus, is of some consequence. Coverings of this manufacture are, however, more valuable when sea-kale is required to be forced, for then all that is necessary is to heap fresh stable manure over the pot, which being earthen ware, is a good conductor of heat, and permits it rapidly to pass through to the plant; so that if the manure is protected by boards on the north and northeast sides, the kale will soon make its appearance and be ready to gather. If garden pots are used in this process, the holes must be well stopped with corks, otherwise the steam of the manure is apt to get inside, and this will infallibly spoil the vegetable. Where forcing is not intended, but merely blanching required, wooden boxes answer better, for wood being a bad conductor of heat, is also a bad conductor of cold, and therefore affords considerable protection. The only alteration I would venture to

suggest in this system of Mr Lowell, as described in the *New England Farmer*, is to have the boxes with a double slanting roof, like a dog kennel, the south side lifting up with common leather hinges, so that the heads may be cut without removing the box, and that this lid be fastened down tight with a nut and screw, the edges of contact on the box being covered with list. When grown in long rows to supply markets, instead of separate boxes, boards tongued and grooved, one on another, supported at intervals by stakes, might be placed on each side of the row, and the roof composed of others placed slanting, with lids over each plant. This strikes me as the most economical method of operating on a large scale. Finally, I feel convinced that gardeners who introduce their vegetables to market well blanched will never lack customers, as in addition to the increased beauty of their appearance, no one who has tasted the delicate blanched heart will ever again relish the coarse green leaf.

J. E. T.

[For the Horticultural Register.]

ON THE PROPAGATION AND MANAGEMENT OF YOUNG ERICAS.

MESSRS EDITORS — As many ladies and gentlemen in this vicinity are now turning their attention to this beautiful tribe of plants, a few brief remarks on their culture and management may be of service to the admirers of them. There are now a great many beautiful species in this country, which may be procured at prices sufficiently moderate, considering the difficulty and risk of importing them in a living state, and I have no doubt when their elegant forms and colors are more universally known, the increased demand for them will amply repay the exertions and outlay of capital of those who venture them to obtain these ornamental plants for the country.

As few of the Cape Ericas produce seed, they are generally increased by striking from cuttings, and I prefer the beginning or end of July for this operation, to any other month in the year. Let the cuttings be taken off about an inch long, then with a sharp pair of scissors remove the leaves close to the wood half way up. Some propagators pull the leaves off, and if that method be preferred, as it is done much quicker, let the operator be careful and pull them off downwards, for if the wood is not properly ripened the bark will be

taken away with the leaf and the cutting rendered useless. After the leaves have been cut or pulled off, place the cutting on the nail of the thumb and with a sharp knife take off the end close to the joint. Then prepare pots the size of your bell glasses and fill them about half full with small pieces of old broken pots, filling the rest to within half an inch of the top with small sharp sand. If the sand is dry, water it, and smooth the surface quite level, and with a pointed stick plant the cuttings, observing to firm them well, giving a gentle watering to settle the sand about them; press the bell glasses a quarter of an inch into the sand to prevent the admission of air, and place them on a shelf where they will be shaded from the hot sun; examine at least twice a week and keep the sand moist; some sorts will root in three months, others will require six months. As fine surface peat earth with a mixture of white sand cannot be procured in this country, take two or three inches deep of the mould from under old oak trees, add one third of clean white sand and mix them well together. In this I have found the ericas thrive equally as well as when planted in peat earth.

Take small pots usually called pippens, drain them well with old broken bricks or pots, put one of the rooted cuttings in each pot, and fill it with the above soil, firming gently with the fingers.

Cover a piece of ground an inch thick with fine gravel or sifted coal ashes, on which place a glazed frame; set the pots in it, or under hand glasses, observing to set the pots quite level, so that they will hold water; shade with mats in the day time for two or three weeks, removing the covering at night; after this time gradually leave them altogether uncovered, and always watering regularly.

Some sorts put in during July will have struck root in October. These should be potted as before observed, and placed on a shelf in the coldest part of the green-house, as the frost would destroy them if left in the frame, or under hand glasses. As many species grow tall and slender, to prevent this they may be topped after they begin to grow; they will then keep low and bushy.

ROBERT MURRAY,
Gardener to Messrs Winship, Brighton.

SALE OF TREES AND PLANTS ON THE ESTATE OF THE LATE
GARDINER GREENE, Esq.

WE notice this principally for the purpose of placing on record the dimensions of a magnificent specimen of *Salisburia adiantifolia*, commonly called the Japan Jingo tree — which the contemplated improvements on this estate will render it necessary to remove.

By comparative admeasurement of its shadow, the height is full forty feet, and the circumference at 3 1-2 feet from the ground is four feet four inches; this plant came originally from China, and is probably the largest of its kind on this continent, and perhaps equal to any in Europe.

It belongs to the coniferous tribe, but has lately been placed with *Phyllocladus*, in a section constituted for these two only, called *Salisburia*, (*Kunth handbuck der Botanik*) the seeds are eaten when roasted.

The singularity, I may say beauty of its leaves distinguish it from all other trees; they resemble those of that most elegant of the fern tribe, *Adiantum*, some of which are not uncommon in the woods of New England, whence its name *adiantifolia*. It is a dioecious plant, and the following notices and answers are from Loudon's *Gardener's Magazine* for Feb. 1835.

"*Salisburia adiantifolia*.—Has this tree ever flowered in England? [The male has flowered once or twice in the Kew Garden; but, we believe, the female has not.] How is it propagated?"

At the above sale were also many other fine trees and shrubs, among others a Tulip tree, (*Liriodendron tulipifera*), about thirty years old, a large and fine *Cornus mascula* just in bloom. J. E. T.

EXTRACTS FROM FOREIGN PUBLICATIONS.

CELERY. — In Paxton's *Horticultural Register* for March, there is a communication on this subject which deserves attention. The Manchester gigantic celery has long borne away the palm throughout England for its size, weight and quality — roots clean and free from sand and earth, have been exhibited of *eighteen* pounds each! adding it is a humiliating reflection that this was grown by a paper maker and not by a gardener.

There is a new variety of celery called the salmon colored, which surpasses every other kind in size, flavor, crispness and elegance of growth, the seed of which cannot be purchased yet at the seed shops ; it has been sold at a higher rate per ounce than pure gold.

The method of cultivation is also quite new — after the trenches are dug they should be lightly filled with a compost of good earth and one third manure, and the celery planted on the top, where they are left to grow their full height without earthing up, at least, only strewing two inches of mould round the roots to cover the fibres when they appear at the surface. Keep the rows free from weeds, and as the plants advance in growth, tie them up slightly with bass at the junction of the leaf and stalk. As they increase, this ligature will have to be removed and a new one put on, taking great care not to destroy their fibres with the hoe while weeding. About three weeks previous to gathering, the earth from the trenches should be piled up gently, nearly covering the plants in order to blanch them.

As to soil, the best celery the author of the communication saw, which weighed sixteen pounds was produced on a sandy soil with a subsoil of open coarse sand.

We shall try the above method of cultivation before we pass a final opinion on its merits, and observe in the mean time that the old process of filling the trenches with earth, certainly checks the growth of celery, although we think the process of blanching must proceed better than by earthing up, after the plant has fully attained its size, and had the influence of the light notwithstanding the tying up.

TO DESTROY INSECTS IN FRUIT TREES. — Put into a basin a handful of earth, on which pour a small quantity of spirits of turpentine, then add water, stir together till of proper consistence to apply to the trees with a brush. A mixture of earth is necessary, because spirits of turpentine swim on water and will not mix, while if used in too large quantities it is likely to injure the trees.

Loudon's Gardener's Magazine for February, contains extracts from the Magasin D'Horticulture, edited by Dr Courtois.

“In No. VIII. there is a memoir on acclimatising plants, in which the principle laid down is, that every exotic tree, in which vegetation is not suspended during winter, is incapable of being acclimatised in countries where the native trees have no sap in the exterior of their trunks (that is, no descending sap) during winter. Deciduous herbaceous plants, from warm countries, may be acclimatised, or rather grown, in cold countries, by covering the ground in which they are

planted, during winter, with such a covering as will exclude frost. Plants with buds on their roots, whether ligneous or herbaceous, from warm countries, may generally be preserved by the same means; and hence the *Bouyardia triphylla* from Mexico, and the Chilean fuchsias, though they die down to the ground every winter, yet the roots being furnished with buds, when they are slightly protected, they never fail to send up shoots the following spring. The pelargonium, on the other hand, having few buds on the roots, and having these and the stems succulent, can seldom be preserved through the winter in the open air. The period at which plants vegetate in their native country, materially influences their susceptibility of acclimatisation. The plants of the south of Chili vegetate in their native country at a time corresponding with our winter; and as they preserve their habit of vegetating at that time here, they never can be perfectly acclimatised unless their period of vegetation could be retarded by giving them a new habit. It is suggested that this might be done by keeping them in the shade, and in a low temperature, until it was desirable that they should vegetate. There are a number of other interesting remarks in this article, chiefly taken from Humboldt."

"After some general remarks on the aspect of England and the neighborhood of London, Dr Courtois notices the different establishments which he visited, commencing with Mr Charlwood's seedshop, in Covent Garden. With the immense botanical collections of seeds from America and other parts of the world, which Mr Charlwood imports, Dr Courtois was much gratified; not only with reference to the commercial influence of their dissemination, but to its effects on botanical science. He examined the herbariums at the Linnæan Society and in the British Museum; but, unfortunately, missed those of Mr Lambert, of which the celebrity is quite classical, and which contains amongst other collections the herbariums of Pursh and of Pallas.

"Among the last notices in his tenth number is one of grafting the live points of the shoots of a plant of *Banksia Baxteri*, which was already dead at the root and up part of the stem, on *Banksia grandis*, by M. Makoy. In another paper, the cleft-grafting of roses on briar or rose roots is recommended; a practice which, we believe, has been partially adopted by some British nurserymen."

VISIT TO THE PRINCIPAL VINEYARDS OF FRANCE AND SPAIN, BY JAMES BUSBY. — "Mr Busby arrived at Cadiz on September 26, 1831, and soon after proceeded to the vineyards of Xeres and its neighborhood. The whole extent of the Xeres vineyards, which produce wine fit for the English market, does not exceed seven thousand acres; and about double that extent will also include the whole of a district which produces an inferior wine, generally sent to England as sherry. 'A great portion of the wines exported to England under the name of sherry, are the growth of Malaga, and are brought round by sea, and transhipped at Cadiz. Most of the sherries sold by retail in England under 40s. a dozen are either of this kind, or of the commonest qualities of the district above alluded to in the neigh-

borhood of Xeres, known as the vineyards of San Lucar and Port St Mary."

"Vines, in some places, are trained with single stems to the height of 2 or 3 feet, and then allowed to branch out like gooseberry bushes; they are manured with recent stable dung when it can be got, and the fruit is never found to be injured by it.

"At Malaga Mr Busby arrived on October 21. It is remarkable that the proprietors of vineyards here have found that a dark-colored soil is the best on which to dry their raisin grapes, in the same manner as the inhabitants of the Alps have learned to throw black earth upon snow, to increase the force of the sun's rays in melting it. The muscatel grapes are only grown on a very limited surface, and never farther than two leagues from the coast. 'There are three distinct sorts of raisins; first, the muscatel, which are the finest, and are always packed in boxes of 25 lbs. each, and half and quarter boxes; secondly, sun or bloom raisins, which are prepared like the muscatels, but from a different grape, and are generally packed in boxes, but sometimes in casks; and, thirdly, the lexia raisins, which are packed in casks, or in grass mats called frails. These raisins are of an inferior kind, and require to be dipped into a lexia, or ley, of wood ashes, with a little oil, before drying.' (p. 45.) The grass mats here alluded to are made of the *Stipa tenacissima*, which also forms the ropes to which the noria baskets are attached; and which, indeed, is applied to a great variety of purposes.

"From Tain, on the Rhone, Mr Busby went to the Hill of Hermitage, of which he gives the following account:—'The Hill of Hermitage is so called from an ancient hermitage, the ruins of which are still in existence near its top. It was inhabited by hermits till within the last 100 years. The hill, though of considerable height, is not of great extent; the whole front which looks to the south may contain three hundred acres; but of this, though the whole is under vines, the lower part is too rich to yield those of the best quality, and a part near the top is too cold to bring its produce to perfect maturity. Even of the middle region, the whole extent does not produce the finest wines. M. Machon, the gentleman whose property we were traversing, pointed out to me the direction in which a belt of calcareous soil crossed the ordinary granitic soil of the mountain; and he said it requires the grapes of these soils to be mixed in order to produce the finest quality of Hermitage. I took home a portion of the soil which he pointed out as calcareous; and the degree of effervescence which took place on my pouring vinegar upon it indicated the presence of a considerable portion of lime. It is probably to this peculiarity that the wine of Hermitage owes its superiority; for, to all appearance, many of the neighboring hills on both sides of the Rhone present situations equally favorable, although the wine produced, even upon the best of them, never rises to above half the value of the former, and, in general, not to the fourth of that value. A good deal may also be attributed to the selection of varieties. The best red wines of Hermitage are made exclusively from one sort of grape, which is named Ciras, properly spelled Scyras, which is

thought to be a corruption of Shiraz, in Persia, whence this grape is said to have been brought originally, by one of the hermits of the mountain. The white wines are made from two varieties, the Roussette and the Marsan. The former yields, by itself, a dry and spirituous wine, which easily affects the head, and the plant produces indifferently; the latter yields a sweeter wine: they are mixed together to produce the best white Hermitage.' (p. 180.) The vines of the Hermitage are strongly manured; and the proprietor said that, without frequent and strong manuring, the vines would scarcely yield anything; adding, that provided only horse or sheep dung were used, there was no danger of giving the wine a bad flavor; which the dung of cows, and especially of pigs, seldom failed to do.

"The sweet *Muscat* and *Old Mountain* wines of Malaga are celebrated all over the world; but though they have the same varieties of vines at Malaga as at Xeres de la Frontera, and pursue a similar practice in making the wine, the best of their dry wines, produced on a soil consisting of decomposed slaty schist, are insipid and flavorless when compared with the Sherries which are produced on the chalky hills of Xeres. The sweet wine of Rivesaltes, the most celebrated in France, is produced on a granitic soil covered with pebbles; and the sweet wines of Cosperon and Collioure, in the same department, are produced on hills of schist, as nearly as possible resembling those of Malaga. But though the dry wines of both these soils are well known, they are not distinguished for their fineness or flavor. Their excellencies are their strength and rich color, which make them valuable for mixing with the weak and light-colored wines of the ordinary growths of Burgundy and Maçon which supply the chief consumption of Paris.

The limited extent of the first-rate vineyards is proverbial, and writers upon the subject have almost universally concluded that it is in vain to attempt accounting for the amazing differences which are frequently observed in the produce of vineyards similar in soil and in every other respect, and separated from each other only by a fence or a footpath. My own observations have led me to believe that there is more of quackery than of truth in this. In all those districts which produce wines of high reputation, some few individuals have seen the advantage of selecting a particular variety of grape, and of managing its culture so as to bring it to the highest state of perfection of which it is capable. The same care has been extended to the making and subsequent management of their wine, by seizing the most favorable moment for the vintage — by the rapidity with which the grapes are gathered and pressed, so that the whole contents of each vat may be exactly in the same state, and a simultaneous and equal fermentation be secured throughout — by exercising equal discrimination and care in the time and manner of drawing off the wine, and in its subsequent treatment in the vats or casks where it is kept — and, lastly, by not selling the wine till it should have acquired all the perfection which it could acquire from age, and by selling, as the produce of their own vineyards, only such vintages as were calculated to acquire or maintain its celebrity. By these means

have the vineyards of a few individuals acquired a reputation which has enabled the proprietors to command almost their own prices for their wines; and it was evidently the interest of such persons that the excellence of their wines should be imputed to a peculiarity in the soil, rather than to a system of management which others might imitate. It is evident, however, that for all this a command of capital is required, which is not often found among proprietors of vineyards; and to this cause, more than to any other, it is undoubtedly to be traced, that a few celebrated properties have acquired, and maintained, almost a monopoly in the production of fine wines."

AN EXCURSION IN SEARCH OF ORCHIDEOUS PLANTS UP THE RIVER MAZZERONI DEMARARA, BY JOHN HENCHMAN.—This is a very entertaining communication, but the cultivation of the orchideous tribe is not sufficiently universal here to give it general interest.

ON SOME INSTRUMENTS FOR TRANSPLANTING LARGE TREES AND THE MANNER OF USING THEM.—These are so simple and so useful, and the object of such importance that we have placed the drawings in the hands of Mr Newell of the Agricultural Warehouse. No doubt he will find it will answer to prepare them for sale.

"Not a single failure has occurred since I have been here, in transplanting numerous plants of the above size, which have been twice removed within eighteen months. I am justified in stating that six or eight plants can be removed by these aids, in the same time as is occupied in removing one or two without them; and many plants, which could not safely be transplanted, for want of means of carrying large unbroken balls, and all the small roots, without bruising or injury, are, by the use of these irons, transplanted with certain success.

"The frequent successful removal of numerous large plants, since I have been here, has often excited the surprise of visitors; and this leads me to hope that this communication will be favorably received, and that it may be deemed worthy of insertion in your valuable Magazine."

MISCELLANEOUS ARTICLES.

COLLECTED BY T. G. F.

A Remedy for Canker and other Wounds in Trees.—The damaged parts of the tree must be cut or peeled off in the spring, and the places rubbed in a fine sunny day with turpentine, which becomes a sort of varnish, so that the wounds will be closed, and the tree will speedily recover. By this simple and cheap remedy many trees have been saved after they had begun to shew symptoms of decay.

Remedies against the Cut worm.—This insect is a small ash colored worm, with a stripe almost black, on its back. When fully grown it is about the size of a goose quill, and about an inch and a quarter in length. It *cuts off* (whence its name,) just at, or a little below the surface of the ground, some of our most valuable garden products, viz. cabbages, cauliflowers, beets, &c. It never voluntarily appears above the surface of the ground in the day time, but may be found about an inch below it. In the night it comes abroad, cuts off the stems of the young plants and then buries itself.

The remedies are various. Dr Deane found sea-mud recently taken from the shore, to be effectual. Lime, ashes, sea water, salt and brine have been recommended. In using salt or brine, however, there may be danger of injuring the plants in attempting to destroy the insects. Decoctions of elder, walnut leaves and tobacco, have likewise been supposed to be effectual. Mr Preston, of Stockport, Penn. preserved his cabbage plants by wrapping a hickory leaf round the stem of each. The Hon. Mr Fiske, of Worcester, Mass. in speaking of this insect, says, "To search out the spoiler and kill him, is the very best course; but as his existence is not known except by his ravages, I make a fortress for my plants with paper, winding it conically and firmly above the root, and securing it by a low embankment of earth."

A small quantity of soap suds poured about the roots will answer the double purpose of destroying the worms and manuring the plants. The ravages of the cut worm on Indian corn, which they often destroy, may be prevented by the following prescription: "Put on each hill of corn about half a gill of live ashes, or double that quantity of dead or leached ashes, let it be spread well over the hill so as to surround each stalk of corn. The best method of putting it on is to carry the ashes in a basket, and with a small shovel, which may be made of the thin end of a shingle three or four inches wide, and by putting the shovel in a horizontal position and shaking it, you will spread the ashes over the hill and around the bottom of the stalks. The dew and rain will produce a ley, which will not only destroy or drive away the worms but manure the plants. Great care should be taken, in particular with live ashes, that it does not light on the blades of the stalks; in which case it is almost as destructive as the worms; therefore I have been particular in describing the best method of putting the ashes on."

The author of this recipe says that the above observations are the

results of a successful experiment for several years in fields where the worms were abundant, several rows that were not ashed were almost totally destroyed, but where the ashes were, the corn flourished unmolested, and produced abundantly—the process is not tedious, one hand can easily ash three acres in a day, and do it well.

To preserve Cucumbers and other Vines from Bugs and Flies.—Simply sift soot from the chimney upon them when the dew is on, once in three or four mornings. This remedy has stood the test of experiment for several years in succession.

Mode of preserving Garden Vegetables from Worms.—The beds in which the vegetables are sown or planted should be enclosed by boards, barks or other substances, which worms cannot penetrate or pass over. The enclosed plat should then be well drenched with water, poured from a watering pot, boiling hot, or as near a boiling heat as possible. The seeds may then be planted without any danger of their being injured by worms, as this simple process not only kills every living insect, but destroys the principle of animation of those which are yet in embryo. The gentleman who communicated to us this information, says he has known it put in practice in several instances with complete success.

Weeds in Gravel Walks, and Blight in Fruit.—Fresh oak saw dust, says a London paper, strewed on gravel walks, will prevent the growth of weeds on the same. The dwarf elder, propagated in hot houses, will prevent blight in fruit, grown.

Salt to kill Worms.—It is said that *fine salt*, sown immediately after seeds are put into the ground at the rate of about two bushels to the acre, will destroy grub worms.

Horse Chesnuts.—In Turkey these nuts, the use of which has been neglected in every other country, are ground and mixed with provender for horses, particularly for those that are broken winded, or troubled with coughs. After being boiled a little to take off their bitterness, bruised, and mixed with a small quantity of barley meal or Indian meal, they are good food for poultry.

Another Mode of Preventing the Ravages of Insects.—A Petersburg paper states that the water in which potatoes have been boiled, sprinkled over grain plants, &c., completely destroys all insects in every stage of their existence, from the egg to the fly.

GARDENER'S WORK FOR MAY.

KITCHEN GARDEN. Cucumbers.— You may generally plant cucumbers in the open ground for a principal crop, between the fifteenth and twentieth of May, in the Eastern States; about the tenth in the Middle States, and the latter part of April or the beginning of May in the Southern States. Some force cucumbers in hot-beds, but those which are thus produced are less wholesome, as well as less palatable, than such as nature affords in the due course of their proper season. For the principal summer crop, you will dig and smooth the ground as usual. Then line it in squares of six feet. In the centre of each square, dig a hole about twelve inches deep and eighteen inches over, and put into this seven or eight inches of old hot-bed dung, or very rotten manure. Throw thereon about four inches of earth, and mix the dung and earth thoroughly with the spade. Draw the remainder of the earth over the mixture, and form a round hill about a foot broad at top. M. Mahon says, “Some people use hot stable dung, under an idea that its heat would promote the vegetation of the seed; this is a mistaken notion, as in a few hours it loses all it had, for want of a sufficient quantity being together to promote fermentation.” When the hills are thus prepared, plant in each five or six cucumber seeds, and cover them with mould about half an inch deep.

Melons.— Those who would raise good melons should be careful to procure good seed, and to plant them remote from inferior sorts, as well as from cucumbers, gourds, pumpkins, and squashes, as they will degenerate in consequence of the mixture. Abercrombie asserts that seed under the age of two years is apt to run too much to vine and show only male flowers. The melon succeeds best in loam, not exhausted by cropping, rich with vegetable manure, with a mixture of sand, but not too light. Other authors assert that a good manure to put under melons is an old compost of good loam, with the dung of neat cattle or swine. The manner of planting may be the same as directed above for cucumbers.

Water Melons.— These require a light, rich, sandy soil. The ground should be prepared, and the planting conducted in every respect as directed for cucumbers, excepting that the hills should be nine or ten feet asunder each way.

Squashes of every kind may be cultivated in the same manner as

cucumbers or melons. But two plants, however, should be left to a hill.

Pumpkins. — These will grow in almost any sort of soil which is proper for hoed crops, provided it is highly manured. It is asserted by some cultivators that pumpkins will grow so much better when planted by themselves than when raised as usual with Indian corn, as to render it expedient always to make them the only crop. When raised alone, they may be from eight to ten feet distant from hill to hill, and two or three plants in each will be sufficient.

Gourds of various sorts are cultivated more for ornament than for use. They may be sown at the same time and cultivated in the same manner as melons, but should be trained to trellises, fences, walls, or to cover arbors. You may plant bush beans and pole beans, for principal crops, at any time during the month, and proceed as directed, page 156. It is recommended to set the poles, and afterwards plant the beans round the poles. Weed and thin advancing crops of radishes. In dry weather water them frequently, which swells the roots and makes them mild and crisp.

Spinage may be sown as a temporary crop between rows of peas, beans, cauliflowers, broccoli, &c. or broadcast by itself, when two ounces will make a bed four feet and a half by thirty feet. Sown in drills, however, it is easier to gather and to keep clear of weeds. The drills may be from nine to twelve inches apart, and the seed sown so that an ounce may sow four feet and a half by thirty. Rake or earth in the seed about an inch deep, after the ground has been thoroughly dug. Carrots, in the Eastern States, may still be sown thin, in drills, from eight to ten inches apart. Weed beets, carrots, parsnips, &c. and thin out the extra plants. Sow peas for succession crops, at least twice this month. If your seed peas are known or suspected to contain insects, scald them a quarter of a minute in boiling water, spread them about, and sow them without delay. In other particulars proceed as directed in our Gardener's Work for April. Sow early sorts of turnips for succession crops. Such sowing is best performed early in the spring, that the roots may acquire a good size before the heat and drought of summer put a stop to their growth. Sow lettuce, peppergrass, and cress, for salad. Ducks, if permitted to run in a garden, will, it is said, destroy slugs, snails, grub worms, caterpillars, and other vermin. They should not, however, be kept in a garden longer than two or three days at a time, lest they become cloyed and indolent. While employed as gardener's assistants they

will need no food, except what they can collect themselves, but should have a tub of water placed for them, if there be no pond or stream to which them can have access. They should not, however, be indulged with the liberties of the garden either in wet weather, or when they can have access to ripe strawberries, gooseberries, &c.

FRUIT GARDEN AND ORCHARD. — Now is, perhaps, the most suitable time in the year for pruning trees. The period immediately before or commensurate with the rising of the sap is to be preferred for this operation. If, however, pruning is commenced when the tree is young, and is properly and seasonably attended to, it will rarely be necessary to take off a large limb, and small limbs, if cut close and smooth may be taken off at any season. The time of the year for grafting as well as for pruning, is when the sap of the stock has begun to move in the spring, and just before the bud has unfolded. For directions see *New American Gardener*, p. 143. Water newly planted fruit trees, if the weather be at all dry. Give water so copiously as to reach the roots, and sometimes water the tops as well as the roots. To preserve the earth moist about the roots of trees recently planted, it has been recommended to place about them some litter from the stables, or the shives of flax, over which may be placed a little loam, or inverted sods, to keep the shives or litter from being blown away by wind. These will keep the ground moist beneath them, especially if watered now and then. With a syringe or garden engine, sprinkle or shower your fruit trees with soap suds, or a weak alkaline solution, at least once, better twice a week during all the earlier part of the season.

Attack insects by sprinkling over the plants infested by them, by means of a syringe, watering pot, or garden engine, simple water, soap suds, decoctions of tobacco, of elder, &c. &c.

The borders and surface of the ground in general where fruit trees grow should be kept very clear from weeds by the application of a sharp hoe, in a dry day, and as soon as hoed, rake off all the weeds and carry them to the compost bed, or bury them beneath rows of plants, instead of permitting them to dry and waste away in the open air.

VINEYARD. — Where suckers from the roots, or shoots from the under part of the stem of grape vines appear, let them be carefully and immediately stripped off. Most of this work, if attended to in due season, may be done by hand, but where that will not answer, you may now use the knife with safety, if vegetation is well advanced,

for although these plants bleed profusely early in the spring, when destitute of leaves, yet when the foliage is fully expanded, the exhalation carries off the fluid or it is expended in the growth of the plant, and it will therefore not escape from a wound made in pruning.

All the shoots which bear fruit, and those which are suitable for next year's bearing, when grown sufficiently long, should be carefully tied up to stakes. It will not at this time be advisable to undertake to hoe or plough the ground between the vines, lest the blossoms or young shoots should be injured. But after the vines have been tied up, towards the end of this, or the beginning of the next month, clear the ground thoroughly of weeds either by the hoe, plough, or cultivator.

NURSERY. — Attend to destroying weeds before their seeds are ripened. “Weeds should never be suffered to grow between rows of trees, &c. for these rob them of a great portion of the necessary nourishment; nor should you, for this same reason, plant any kitchen vegetables as is practised by some unskilful and slevly persons.

“The seed-beds of all young trees and shrubs should now in particular be kept remarkably free from weeds, and this must always be done by a very careful hand weeding.” — *M. Mahon*.

Look to your grafted trees. — Loudon says, “In a month after grafting it may be ascertained whether the scion has united with the stock, by observing the progress of its buds; but in general it is not safe to remove the clay for three months or more, till the graft is completely cicatrized.” Those which are not well united may have the bandage slackened and fresh clay applied as at first; or the clay or composition may be applied without the bandage in order to preserve the wound from the weather. Seedlings in pots and tubs, of the more delicate plants should now be kept in the shade in the middle of the day, but allowed the morning sun till nine or ten o'clock, and that of the afternoon after four; they must be frequently watered and kept free from weeds.

FLOWER GARDEN. — First week. Sow all kinds of annuals, and on fine days give plenty of air to the tender plants, advanced under glass. Towards the middle and latter end of the month, pot off balsams, cypress vine, amaranthus, and other flowers intended for especial cultivation, replacing them under the glass, and shading them the first few days, until the new fibres have taken hold of the earth. Destroy all appearances of weeds in the flower beds.

THE
HORTICULTURAL REGISTER

AND
GARDENER'S MAGAZINE.

JUNE 1, 1835.

CAMELLIA JAPONICA. (WARRATAH KURTZII.)

[It is with some degree of pleasure mingled with pride, that we offer a representation of a splendid seedling Camellia, raised in America by Mr Edward Kurtz, an efficient member of the Maryland Horticultural Society. The admixture of yellow in the centre petals appears to us a new feature in this charming tribe. — T.]

PRODUCED from seed by Mr Edward Kurtz, an amateur, of Baltimore, Maryland. It flowered for the first time on the 25th March, 1835. It was raised from seed of the old anemone flowered Camellia. Its form that of the anemone flora; the outer large petals of a fine clear carmine, cordate and finely veined. The centre petals, white grounded with occasional sulphur tinges and beautifully pencilled with deep bright pink, many of them edged with yellow. In its perfect state, the centre was very compact, petals small, erect and mostly well formed. The painting was made on the day the flower fell off, and consequently represents the centre somewhat deranged; but in other respects it is an exact likeness.

The mode of culture pursued by the producer of this plant, is that generally adopted by most cultivators of the Camellia. It is however given in brief terms:

The seed was planted as soon as it was ripe, (to prevent its drying, which is injurious,) in deep four inch pots, one seed in each, covered half an inch deep. Compost, two parts good loam and one part leaf or peat mould. Placed in the green house, kept moderately moist. A good frame with moderate bottom heat the producer thinks would

answer better than a green-house. The young plants began to show themselves in the beginning of the following April. When they attained the height of ten or twelve inches they were shifted into pots a size larger, where they were left to flower, the same compost being used as with the seed. They generally flower in four or five years. During summer, the plants are placed in an airy open situation, not exposed to the mid-day or afternoon sun. The morning sun is considered congenial to them. In warm weather syringing two or three times a week, is beneficial. By this treatment, strong wood, fine colored foliage and free flowering, are produced.

The Maryland Horticultural Society considered this *Camellia* entirely distinct from any that has appeared amongst us, and an addition to our ornamental collections sufficiently important to authorize special notice and distinction, and therefore passed the following resolutions :

Resolved, That the new *Camellia* exhibited by Mr Kurtz, be named by the Society, the *Camellia japonica warratah Kurtzii*; and that a correct drawing be attained of it at the expense of the Society, and, together with a full description of the flower, offered for publication in some Horticultural work.

GIDEON B. SMITH,

Cor. Sec'ry, Maryland Horticultural Society.

To grow the *Camellia* in great perfection, considerable care is necessary. Any one in repotting their plants, will observe how liable the roots are to get matted together so as to render them altogether impervious to water, which often runs down by the sides of the pot, leaving the middle dry. After the plants have done flowering, that is from February to the middle of March, there is a short state of rest preparatory to forming the spring shoots; this period should be taken advantage of to repot, and supply the roots with fresh earth. As much of the old exhausted earth should therefore be carefully removed as can be safely done without disturbing the young roots, a blunt stick is best used for this purpose, and the plant then put with fresh earth into a size larger pot, well drained at the bottom with potsherd. Some heat is now requisite to assist the new shoots in starting and to render them vigorous; from this period until they have done growing, water should be abundantly supplied, occasionally over the leaves to keep them healthy. During the summer they should stand well exposed to the air, but with only the morning sun, and even this ought not to strike on the pots. This part of the treatment, however, may be varied by keeping some plants in the Vinery all the summer,

they will then probably flower the latter end of October, and if the previously described operation is pursued as soon as the flowers are over, the following season the blossoms will open in the beginning of October; by this mode of keeping some in a warmer temperature, a regular succession may in a few years be obtained from September to June. When the buds are about to open, the plants should be removed to a cooler atmosphere, as warmth very soon robs the flowers of their beauty, nor indeed do they ever expand favorably in great heat. It must be observed, however, that the plants which come out from December to the end of March, are generally larger and more perfect than those at earlier or later periods. With regard to soil, I can add but little to the information in the preceding communication, except that Sweet says, Messrs Loddiges found very light loam to answer as well or better than loam and peat, and in the celebrated garden of Comte de Vandes, rotten manure was mixed with loam and peat. Those, and they are many, who make a parlor plant of the Camellia, are often disappointed and discouraged at seeing the apparently well formed flower buds turn brown and drop off, just when expected to open. With some this arises from not having been repotted the previous spring; it is evident that the numerous roots must have exhausted all the goodness of the soil in forcing shoots and buds. Water will then just keep the plant alive, but affords no strength for the flower to come to perfection. With others the plant is much injured by the strong dry stove heat kept up in the room, a state of atmosphere not at all congenial to the Camellia, and particularly when flowering: the leaves must at all times be kept clean and free from dust. A little attention to these points, particularly not suffering them to stand during the summer in the hot sun, and keeping them well watered, would make the parlor cultivation of this plant by no means difficult. When placed out of doors, they should not stand too near each other, a free circulation of air improves their appearance and strength.

Last summer, the writer observed to several Camellia growers who were raising seedlings, that if these were inarched the second year on a large and old single red stock, it was probable a year or two would be saved in ascertaining the value of the seedling, as all trees come into bearing earlier by this method. An apple seedling will be seven to nine years before it produces fruit, but if a shoot of it when only two years old be grafted on an old tree, the fruit will show itself, probably in four years, — even the shoot of a seedling one year old will sometimes succeed

Dr Von Siebold has just published a work, partly the result of his late visit to Japan, called *Nippon Archief voor de Beschrijving van Japan, &c. &c.*, or "Archives for a Description of Japan, its Dependencies and Vicinity," compiled from Japan and European publications as well as from his own personal observations. In the second part, there is an interesting dissertation on the Tea plant.

The author states that the *Thea sinensis* is the original plant which is not indigenous either in China or Japan, but was introduced into these countries in the beginning of the 9th century from Koorai, and has been under careful cultivation ever since. From this plant the following varieties have originated.

1. *Thea* with small leaves of a very dark color, the *Thea bohea* of others. 2. *Thea* or larger leaves of a lighter color, the *Thea* (viridis) green: from the first of these sprung *Thea sinensis stricta*, and *Thea sinensis rugosa*; from the second, *Thea sinensis diffusa*, and *Thea sinensis macrophylla*.

These descriptions are accompanied by beautiful plates drawn from nature. There is in this work much curious information on the cultivation of the plant, and the manufacture of the Tea of commerce, in course of which it is stated that the odor of this article is not produced as has been imagined by the admixture of other fragrant flowers, but that like Coffee, it is the result of gentle roasting, by which the leaves of the Tea plant are dried, being constantly stirred during the operation. This has subsequently been tried in Germany with leaves from *Theas* in the Conservatory, and the well known odors after some days' trial have been perfectly produced.

Professor Ness Von Esenbeck, to whom this information was communicated for revision and examination, previous to publication, has added many important observations. According to his views the genera *Thea* and *Camellia*, on account of their peculiar nut-like seeds, and the absence of the albumen in them, should be formed into a distinct order to be called *Theaceæ*, nearly allied to the *Ternstræmaceæ* family, these with *Guttiferæ*, *Hypericineæ*, *Marcgraviæ* and *Tiliaceæ*, would form a very natural class, the next link to the true *Malvaceæ*. The fruit of the *Ternstræmaceæ* is hardly sufficiently known to decide whether *Gordonia* of Decandolle, (the Loblolly bay which grows in the Cedar Swamps, on the sea coast from Virginia to Florida,) should be added to the *Theaceæ*, or this latter simply confined to *Thea* and *Camellia*—the species *Sasanqua*, which was properly formed from *Camellia Sasanqua* by Thunberg, must, however,

at all events be added to it. The scientific botanical description in Latin of these three varieties, are given at full length, they would not be interesting to the mass of our readers — at the end there is a query whether, perhaps the *Thea oleosa* and *Camellia drupifera* of Loureiro belongs to *Theaceæ*.

We close this article with a catalogue of the most select sorts, cultivated for sale by Messrs Chandler & Sons, Nurserymen, Vauxhall, London. The prices are those of this season for strong young plants.

CAMELLIA.

	<i>s. d.</i>	Gray's Invincible or Punc-	
Double White,	3 6	tata,	10 6
Do. Red,	3 6	Press' Eclipse,	10 6
Single White,	3 6	Do. Single white striped,	7 6
Double Striped,	3 6	Elphinstonia,	10 6
Pomponne or Kew Blush,	5 0	Chandleri,	7 6
Pæoniflora,	5 0	Elegans,	10 6
Variabilis,	5 0	Eximia,	10 6
Waratah,	5 0	Anemoniflora alba,	7 6
Fimbriata,	5 0	Florida,	7 6
Hume's Blush or Buff,	3 6	Speciosa,	10 6
Wellbankiana,	5 0	Alba semi duplex,	10 6
Myrtifolia,	5 0	Splendens,	7 6
Althæflora,	7 6	Colvillii,	21 0
Sasanqua Rosea,	5 0	Cliviana,	10 6
Atorubens,	5 0	Sabini,	21 0
Woodsii,	10 6	Park's Rose Striped,	10 6
Aitonis, single red	7 6	Conspicua,	21 0
Rosa Sinensis,	7 6	Dorsetia,	21 0
Corallina,	10 6	Decora,	21 0
Concinna,	10 6	Sericea,	10 6
Wiltoni,	10 6	Incomparabilis,	10 6
Imbricata,	15 0	Augusta,	21 0
Reticulata,	31 6	Formosa,	21 0
Gray's Rosa Mundi,	7 6	Purpurascens,	10 6

ON PARTY SPIRIT IN HORTICULTURE.

START not, reader ; the caption of this article forebodes no bloodshed in America, and however violent the spirit, the subject is merely a ROSE.

It is in the great commercial, free Hanseatic city of Hamburg, in Germany, that this flame of discord has been kindled, which threatens even to falsify the line of the great delineator of the human character, that,

“ A rose by any other name would smell as sweet.”

It appears that Messrs Booth, proprietors of the Flottbeck Nursery, near Hamburg, had raised a new rose from the seed of the old and well-known Maiden's blush, which is described as wonderfully beautiful (*wunderschön*) and of which they had consequently sold a large quantity. This they called in their catalogue the Queen of Denmark rose.

Professor Lehmann, Director of the Hamburg Botanic Garden, in his descriptive catalogue remarks on a variety of the rose, there called *La Belle Courtisanne*, that this rose was described in France in 1806 as a hybrid between the old Dutch hundred leaf and the Maiden's blush.

The roses being identical, Messrs Booth felt the honor of their well regulated nursery at stake, and after some slight warfare in their respective annual catalogues, these gentlemen published a pamphlet on the subject, which was replied to by the Professor in the newspaper. This produced a very bitter and personal rejoinder from Messrs Booth, in a second pamphlet, which was distributed gratuitously.

The Professor having stated that the rose in question was figured in the magnificent and expensive publication, with colored plates, by the celebrated Redouté, fellow pupil with Audubon, of David the painter, he procured the work and left it out for public exhibition. Redouté's figure was generally considered identical with Booth's Queen of Denmark, although these gentlemen would scarcely allow it.

A hot war of affidavits, letters of proof, and documents now commenced, the most interesting of which is a letter from the distinguished veteran botanist, Thouin, who died in 1826, dated in 1824, which gives some good explanations of the Professor's strong declaration, and shows that the Belle Courtisanne rose, under this name,

was sent by Thouin to the Hamburg Botanic Garden, from whence it was also distributed to many other gardens.

Messrs Booth hereupon published gratis a most offensive pamphlet, entitled "Victory of the Queen of Denmark Rose, unveiling the motives of the attack of Professor Lehmann." To this the Professor published a cool and well written reply; the friends on each side began to publish also — accusation and retorts were liberally scattered and the plague of party spirit spread far and wide. We do not think, however, it will terminate in a continental war.

That elegant German writer, Wieland, in his fiction of the history of the people of Abdera, a town in ancient Greece, relates that a citizen of the town hired an ass; the day being sultry, he took it into his head during his ride, to dismount from the patient animal, and sit down for a time in the shade of the creature's body. The owner demurred to this proceeding, and demanded additional hire, having, as he stated, only let the ass, and not his shadow. After a warm altercation, both returned to the city and went before the magistrate. The question now became altogether one of party, in which no neutrality was permitted, and the whole city was soon divided into two violent sides, one of which obtained the appropriate distinctive appellation of *Asses*, and the other of *Asses' shadows*. During a popular commotion on this quarrel, the innocent cause of it was torn limb from limb — thus even the shadow of an ass was annihilated, and had not some other question of equal importance been started, which threw this into oblivion, the result would no doubt have been disastrous. We disclaim the slightest idea of an offensive application of the above story; it is enough to show how well those understand the human heart who describe a trifle as sufficient to inflame the bad passions of mankind.

The highly talented German botanist, Nees Von Esenbeck, writes two letters on this quarrel, which have been published in the *Allgemeine Botanische Zeitung*, (General Botanical Newspaper) commencing in something like the following lively vein:

"How much that is beautiful, joyous, and endearing has been written and said on the Rose; how much that is delightful on its character? how many exquisite ideas has it inspired to be breathed by Love? The beauty of this flower must sink deepest into our imagination, when its appearance forces us to associate with it every feeling that is tender, delicate, and luxurious. How anomalous, how absurd, then, the idea that the Rose can engender feelings of division and

strife. I am convinced that in the beautiful manuscript of my young friend Doring, 'On the Character and Nature of the Rose,' there is not even the smallest chapter on the fruit of Rose as an apple of discord."*

It is hardly worth while to read every statement and counter statement in this quarrel, but we believe that Messrs Booth, the nursery men, must have the best of it, as undoubtedly the excitement has enabled them to sell the greater part of their stock of this rose, as well as of many others approaching to it in character, to enable a comparison; while the publishers of Redouté's work on roses have certainly disposed of several copies to persons who have withstood the best newspaper puffs that ever were penned.

OF THE USE OF THE KNIFE IN HORTICULTURE.

THE knife is hardly second in real value to the spade or the hoe, if it be used sufficiently, and with judgment. Among young gardeners too much caution is observed, and the fear of cutting off an apple or a peach in embryo, saves many a branch from being removed, to the great detriment both of tree and fruit, — so with flowers, the great reluctance to use the knife is the cause that many climbing plants like the honeysuckle, look naked and straggling for many feet from the ground, when by proper pruning they might be covered with beautiful foliage, concealing the crooked and unsightly stems. Roses are generally suffered here to go untouched by the knife, when the usual practice in Europe is very early in the spring to cut them down (except climbers) to within four or five inches of the ground; those who have been made best judges by experience, consider this method of treatment increases the quantity, size and beauty of the flower, and my own experience fully confirms this; there is no doubt however that the practice may be carried too far, but that is not the failing here at present. According to the most recent and approved system of vegetable physiology, every bud is a separate vegetable being, the trunk and

* The apple was placed by Decandolle in the Rosaceous family, from which it is now, however, properly separated. It is classed with others in a distinct order called Pomaceæ, from Poma, an apple. The figure of Nees Van Esenbeck, of the rose fruit being an apple of discord is therefore not so far wrong as may appear at first sight.

branches on which it exists being little more than a soil where it has taken root, and by which it is supplied with juices fit for its habits — this is evident from the buds inserted into rose trees, they push their roots into the stock, and from thence draw their sustenance, but the flower is altogether the same as the bud, and does not resemble that of the original stock. This last, certainly raises the sap most congenial from the earth and supplies it to the bud in its increasing state, but the process of analysing this juice and forwarding each component and prepared part to its assigned function, remains with the new plant and is performed according to the habit nature has impressed on the inserted bud, producing corresponding flowers.

The tubers of the potato and young bulbs, are also subterranean buds, in which the principle of vegetable life is incased in substances wisely provided, and sufficient for their preservation until the proper season of their development arrives.

The seed also is only a bud with different qualities, technically called the embryo, enveloped most frequently in what are termed cotyledons, which protect it during its inactivity and nourish it before the radicle or root is able to perform this office with juices extracted from the earth. To this existence of cotyledons, there are some exceptions ; they are sometimes replaced by other contrivances, but these do not alter the value of the argument. In cutting off branches containing buds, therefore, we are merely acting like the man who has sown his seed too thick, and finds it necessary to thin out his plants in order that what remains may arrive at perfection. And to do this with judgment in pruning, it will be necessary to draw largely on the experience of others, particularly as to the most proper season of performing this essential operation.

For beginners, the first consideration in pruning fruit trees should be on what part of a branch is the fruit borne ; thus on the apple tree it is borne on short spurs arising from ripened wood ; the same with pears. The next consideration is the shape in which it is most desirable the tree should grow ; the third, how to expose as much of the fruit as possible to the ripening influences of the sun and air.

Therefore, in cutting the above mentioned trees, care must be taken to remove as little of the ripened spur bearing wood as possible, but principally the long wiry shoots which have buds at great distances ; in many of the apple tribe strong straight branches will appear in the centre, which divert much of the strength of the tree, and

would be of little use if allowed to grow to perfection, or the fruit could not be sufficiently exposed to ripen unless desired to replace a branch decayed. The pear requires much less cutting than the apple, but it is unwise and injurious to mutilate any tree too much at a time, annual and therefore gradual pruning is much preferable. This is the result of direct experiments made in Scotland, that land of gardeners.

Dr Courtois, Editor of the *Magasin d'Horticulture*, an excellent French periodical published at Liege, says that in England the gardeners take off too much young wood in the summer from the apple and pear trees, which is apt to destroy the formation of flower buds, while in winter they shorten the wood too much, which makes the trees throw out over luxuriant shoots in the spring.

The peach and nectarine send out thick shoots which seldom bear fruit, the thin branches of one year old are generally appropriated to this service, but these thick ones should only be shortened to about one third, as they produce the thin fruit-bearing wood. In England where the peach is generally grown against walls, one of the essential requisites of a good gardener is to be able to train and prune this tree with judgment and knowledge; here it is almost always a standard, and is seldom touched by the knife,—the spring pruning there, is nearly entirely devoted to shortening the fruit bearing branches as soon as the blossom buds are evident, and Harrison, one of the most experienced cultivators, is in the habit of leaving these branches very short. I do not think this practice will meet with many imitators here, but am certainly of opinion that if these shoots were tipped with the knife, always leaving a leaf bud above the blossom bud, it would be advantageous. Many peach trees are allowed to grow with tall straggling trunks, thereby exposing not only the fruit but also the tree itself to be destroyed by high winds; this may be avoided by heading down while young, thus forming a low bushy plant, which may be always kept so, and in this state if there happen to be accidental protection of high ground or forest tree, it is more effectual than when the head of the tree is elevated on an unsightly trunk.

The apricot bears fruit also upon spurs arising from two or three year old wood, these should therefore be carefully preserved, unless when too thick and on old trees; they may then be thinned out; but the apricot is more liable to be injured by pruning large branches than the peach; these are however not produced in such profusion on the apricot.

As this paper is intended to encourage a more universal use of the knife, rather than as a scientific treatise on pruning, the following observations will be more diffuse and general; reminding the reader that a sharp knife and a clean cut are absolute requisites in gardening, and that when the saw is used for large limbs the wound must be cut clean over.

The raspberry and most of its tribe should always be cut to about five feet high, it increases the quantity and size of the fruit, as well as encourages the growth of the suckers for the following year, it should however not be done until all chance of severe frost is over, yet before the buds shoot, the stems ought afterwards to be lightly tied together at the top or if crooked fastened to a stake, this gives the plantation a neat appearance and facilitates gathering the fruit.

The gooseberry and currant likewise require the knife occasionally, the first principally for shortening the long straggling shoots which recline on the earth, and for cutting out superfluous wood, — about four or five inches between the ends of the bearing branches is the proper distance — the currant for cutting out old wood and shortening shoots so as to expose the fruit sufficiently to ripen.

Nor is the knife less useful in the ornamental shrubbery; many an unsightly sticky old flowering shrub would throw out young, healthy and handsome shoots if the old wood was properly cut out. The beauty of many hedges is lost for want of cutting low, and the finest specimens of *Magnolia glauca* I have seen in the vicinity of Boston, have been produced by cutting down the tall plants brought from Gloucester their native spot; thus transforming them into handsome bushes.

J. E. T.

[To be continued.]

ON THE VEGETABLE PRODUCTION OF INDIA RUBBER, AND ITS APPLICATION TO MANUFACTURES.

At the present time, when attention to this subject is so much awakened, we deem an account of it will be of some interest to our general readers, particularly as an entirely new and extraordinary use for it has been very recently discovered and patented in England.

The India Rubber in the state it is imported into this country, is the concrete juice of the *Hevea caoutchouc*, or *guianensis*, a Euphorbiaceous plant which abounds in South America; it is also produced

from the Apocynœous plants, as *Urceola elastica*, of Sumatra, *Vahea Madagascariensis*, *Ficus elastica*, of the East Indies; and from Artocarpeous ones, as *Ficus indica*, the Banyan tree also of the East Indies, *Artocarpus incisa*, the Bread fruit tree, from the West Indies, and from many trees in Africa. In fact, plants producing it grow in almost all countries in or near the tropics. The produce of these is sometimes equal to nearly two thirds the weight of the branch tapped, and when exhausted, but a few months' rest are required to replenish the vessels; the supply is therefore equal to almost any consumption, although no doubt exists that this will increase amazingly. A small quantity has been manufactured from the juice of a tree in the Glasgow botanic garden, and exposed to the public at an agricultural museum at Stirling in Scotland.

Mr Nuttall observes that the juice of the Milk weed, *Asclepias Syriaca*, which grows plentifully in the vicinity of Boston, as well as of that of the *Apocynum* is convertible into a substance resembling gum elastic.

A patent has been very recently granted in England for the manufacture of an essential oil or liquid, by distilling India Rubber at a given heat in close vessels made for that purpose; by redistillation it comes over pure and transparent. This oil has many singular characters. It is the lightest liquid known, being of less specific gravity than sulphuric ether, it is exceedingly volatile, yet the gas formed when it evaporates is the heaviest gas known, and may be poured out of one vessel into another like water, as was exhibited at a late lecture given on it, by Dr Faraday in London. The rapid evaporation of it, produces intense cold; one minute and a quarter was sufficient to reduce the thermometer from 60 Fahrenheit to 10° below zero, by covering the bulb with muslin and blowing on it with a bellows, while this liquid was dropped on it.

On removing the muslin at about 10 above zero, in another experiment, the bulb was observed to be covered with a concrete substance resembling snow, termed by Dr Faraday, Bicarburet of Hydrogen, supposed to have been previously discovered by M. Mitscherlich.

On mixing this produce of India Rubber with cocoanut oil, which is known to be always hard at the usual temperature of the atmosphere, in the proportion of one quarter of the former to three quarters of the latter, the cocoa nut oil is liquefied and gives a most brilliant flame.

Mr Beale has taken out a patent in England, for a new lamp to burn this mixture ; one of them was exhibited at the before-mentioned lecture, and surprised the audience by its peculiar brilliancy.

It mixes readily with oils used for painting, and evaporates so speedily that the paint dries within an hour after laying it on. As it is extremely cheap and does not in the least injure the most delicate colors, it is probable that it will be considerably used for this purpose.

One of its most important properties, however, is that of completely dissolving all the Gum resins, particularly Gum Copal, without the assistance of heat, therefore the varnish may be prepared without the usual danger from fire. It is also a perfect solvent in cold, of India rubber itself, and when this is laid on any substance in its liquid state, the oil evaporates and leaves the India rubber without the slightest alteration of its character, fixed on the material.

Messrs Enderby & Co. of Greenwich, near London, have established a manufactory of this substance on a large scale, and have sent an agent to South America for the purpose of procuring a constant supply — they have always about one hundred tons to operate on.

The principal object of their manufactory, is to saturate the fibres of the Phormium tenax or New Zealand flax, with this liquid previous to its being made into cables, thereby rendering it totally impervious to water, and protecting it altogether from the effects of damp and moisture.

It has been named Caoutchouchine from Caoutchouc, another name for India rubber — which it is supposed, if carefully managed on distillation, would give nearly weight for weight of this oil.

Being so recently discovered, its properties are of course by no means entirely developed, and much remains yet to be known on the subject. Dr Faraday's lecture is represented to have been most interesting — he exhibited the juice of the India rubber in its fresh state and explained how it deposited the article of commerce — he entered also into a chemical analysis of it, the repetition of which here would be trespassing too far on our horticultural readers.

J. E. T.

FOREIGN PUBLICATIONS.

IN the notices of plants figured in the various foreign publications we intend merely to extract the description of such as we think will be interesting to our readers from their showy appearance or other marked qualities.

From the British Flower Garden, edited by D. Don.

Funckia lancifolia—named by Sprengel after H. C. Funck, a German apothecary and botanist.

Hexandria monogynia, and *hemerocallidæ*, introduced from Japan in 1834, by Mr Knight of Chelsea.

The *Funckia cerulea* is well known here as a hardy perennial, under the name of blue *Hemerocallis*—this differs sensibly from it both in the form of the leaves and the corolla, and in the raceme, having fewer flowers, but the common observer would probably not distinguish them.

Vicia polysperma, *Diadelphia decandria* and *leguminosæ*, very much resembling the common Vetch.

The drawing was taken from Mrs Marryat's* collection at Wimbledon, and was discovered by Professor Tenore, in the kingdom of Naples; a hardy perennial.

Lilium tenuifolium; narrow leaved turncap lily. *Hexandria monogynia* and *liliacæ*, a beautiful and graceful scarlet flower, native of the vast plains of Siberia, the bulbs of which are eaten by the wandering Tartars; doubtfully hardy, as it is never found beyond the 55th degree of north latitude.

Dabæcia polifolia, *octandria monogynia* and *ericacæ*. White flowered Irish heath—one of the *Andromeda* tribe.

Alstræmeria flos martini—the St Martin's flower of Chile.

Hexandria monogynia and *amaryllidæ*—also from Mrs Marryat's collection, an especial favorite with us. Scarcely any flower equals the beauty of the *Alstræmeria* and this is the handsomest of the tribe. We have seen fine healthy plants in Messrs Winship's and other greenhouses, and trust they will be exhibited this year at the Horticultural Society's room.

* Mrs Marryat is an American lady, living at Wimbledon, near London, and like many of her countrywomen, has a decided taste for floriculture, and possesses one of the finest collections of plants near the metropolis.

Nuttallia papaver, Monadelphia polyandria and malvaceæ, named by Dr T. Barton of Philadelphia, after the discoverer of the genus, Mr T. Nuttall of Cambridge, Mass. A rich lake-colored flower, resembling what is here generally called hibiscus — it was introduced into England in 1833, from seeds gathered by Mr Drummond near Covington, Louisiana.

Gilia achillæfolia, Pentandria monogynia and polemoniaceæ. The *Gilia capitata* is well known here as a hardy annual, this is of equally easy cultivation, the flowers are not so close together, but about four or five times the size and of a darker color than *capitata* — introduced by Mr Douglas, from California.

Gladiolus natalensis, natal cornflag, triandria monogynia and iridææ. Called *G. pittacinus* by Hooker in Botanic Magazine, and by Lindley in Botanical Register; a native of the Natal river, on the southeast coast of Caffraria; it is a large and magnificent species, and seems to be as hardy as *G. Byzantinus*.

Rhinopetalum Karelini, Kareline's rhinopetalum, hexandria monogynia and liliaceæ — a curious, pretty, small bulbous plant, from the deserts of Ural.

Rhododendron indicum, var. *speciosum*, Decandria monogynia and rhodoreæ. It is difficult to give an adequate idea of the splendor of this new seedling, raised at Combewood in 1830, from *R. indicum* and *R. phœniceum*. The blossoms appear only in pairs at the end of the branches, but it flowers very freely. The color is red, bright and showy, and the size three inches across each flower.

Two other paler varieties were also obtained from the same seed, one of which is semidouble.

From the Botanical Register, by John Lindley.

In this publication are three splendid and curious orchideous plants, *Cycnoches Loddigesii* from the woods of Surinam, *Grobya Amherstii* from Brazil, and with a strong vanilla fragrance, and *Monachanthus discolor*, one of the plants sent from Demerara by Mr Colley.

Calceolaria angustiflora, Diandria monogynia and scrophularinæ, narrow flowered *Calceolaria* from the Valley of Canta, in Peru.

The learned editor in his description of this plant, indulges in a vehement philippic against hybridizers in general, who he observes have converted some of the fairest races in the vegetable world into forms in no case more beautiful than the original, and in the majority of instances unhealthy, mongrel and debased.

Indigofera atropurpurea, purple flowered Indigo plant.

Diadelphia decandria and *leguminosæ*, a handsome stove plant, native of the hot valleys in Nepal.

Tritoma Burchellii, *Hexandria monogynia* and *Asphodeleæ*, a beautiful bulbous flower from the Cape of Good Hope, which has proved quite hardy in England, but is doubtful whether it would bear the severe frosts of this climate.

Zephyranthes spofforthiana, *Hexandria monogynia* and *Amaryllidæ*, an elegant liliaceous hybrid plant, raised by the Hon. and Rev. W. Herbert, between *Z. tubispatha* and *Z. carnata*; it can only be preserved in the greenhouse.

Gardoquia Hookeri, *Didynamia gymnospermia* and *labiatæ*, rather pretty half shrubby plant from Florida, named after Don Diego Gardoqui, minister of finance under Charles IV. of Spain, who favored the expedition of Ruiz and Pavon to South America.

Lithospermum rosmarinifolium, rosemary leaved Gromwell, *Pentandria monogynia* and *boragineæ*, a pretty blue flower from the island of Capri in the southern part of Italy, also from Mrs Marryat's collection.

Chelone centranthifolia, *Didynamia gymnospermia* and *scrophularinæ*, resembles the well known *Chelone barbata* from California.

Campanula fragilis, *Pentandria monogynia* and *campanulacææ*, a very pretty low growing species with large open blue flowers, also from the island of Capri, where it grows in very dense tufts, hanging down the face of the limestone rocks; from Mrs Marryat's collection.

Brugmansia bicolor, *Pentandria monogynia* and *solaneæ*, introduced from Guayaquil in 1833 by Charles Crawley, Esq. The *Brugmansia arborea* is known in this country as a most splendid plant with white flowers. In page 110 of our present work will be found a description of one species seventeen feet high, with six hundred flowers expanded at once; the Bicolor above named has its blossoms either of a bright orange yellow or a deep orange red, which must make a magnificent appearance; it is a hardy greenhouse plant, only requiring protection during the winter, and flourishing most when planted in the open ground, as the roots are large and require much moisture. In the temple of the sun, in the city of Sogamorza there is a famous oracle, the priests of which inspired themselves by chewing the intoxicating seeds of this plant, just as the Pythoness at Delphi received the influence of her god by chewing laurel leaves, and inhaling a gaseous vapor. From the fruit itself the Columbians prepare a drink called Tonga, which when weak is merely soporific, but drunk

in strong doses produces frenzy, which can only be removed by immediate draughts of cold water.

Sempervivum urbicum, city house leek.

Dodecandria hexagynia and Crassulaceæ sempervivæ: this is the handsomest of the shrubby species of this genus, the *Sempervivum arboreum* is well known in the green-houses in this vicinity, the *Urbicum* is from the Canary Islands. These plants are so tenacious of life that they have obtained their name from the two Latin words *semper* and *vivum*, signifying to live for ever.

Dracæna terminalis, Sandwich Island Tea plant.

Hexandria monogynia and Asphodeleæ, a graceful stove plant common in the South Sea Islands, where the natives use the root for food when baked, and also when mixed with water and fermented as an intoxicating drink. Some American Captains who visited these Islands, made beer of it, being an excellent antiscorbutic. The branch is an emblem of peace among the natives, and the leaves are woven into cloaks and serve likewise to thatch their houses.

Berberis dealbata, the Whitened Barberry.

Hexandria monogynia and Berberideæ, an evergreen shrub from Mexico, called Whitened from the underside of the leaf being very white from the discoloration of the skin. The clusters of flowers are very thick, nodding, the leaves roundish and spinous.

Lælia anceps, a magnificent orchideous plant from Mexico.

Monachanthus viridis, a curious orchideous plant from Brazil.

Arbutus procera, tall strawberry tree.

Decandria monogynia, a pretty shrub from the North West Coast, *Brassia lanceana*, another curious orchideous plant from Surinam and the Brazils, with a most exquisite fragrance.

Rhodochiton volubile, Twining Red Cloak.

Didynamia angiospermia and scrophularine; this beautiful climber has been already noticed at page 75 of our present volume, but as it is likely to become a great favorite, we make the following useful extracts.

There can be no doubt that it is, of all the known climbing plants with which we cover our walls, the most remarkable and beautiful, and ought to be particularly recommended as it is easily cultivated and flowers so freely. The seeds are sown in March and April, (in the hot bed) that the young plants may become strong enough in time for planting in the open ground, where they remain during the whole summer; if these plants are to be preserved, they should be potted

off, and put in a conservatory, where they prosper in a temperature from 43° to 48° Fahrenheit.

This management is followed in the Berlin Garden in Germany, where it was observed in the Autumn of 1833 in a more thriving state than those in England. Its greatest enemy seems to be the bright sunlight.

From the Botanical Magazine, by J. Hooker.

Of the figures in the monthly publication for March and April, seven are orchideous house plants, which although exceedingly curious in their structure and forms, are difficult both to procure and to cultivate, and therefore in the present state of horticulture in this country, are not of sufficient interest for us to devote much space in describing. Of the remainder *Eurycles cunninghamii*, Hexandria monomygia and amaryllidææ, appears to us most attractive, it is a greenhouse plant and was formerly called *Paneratium amboinense*, from which section it was separated by Mr Salisbury on account of the cells of the ovarum containing two seeds, and the tube of the corona being divided nearly to the base, into six almost distinct segments.

Loudon's Gardener's Magazine for April, contains a pretty plan for a garden of one quarter of an acre extent, with the shrubs and trees necessary to ornament it, but being accompanied by two large wood cuts, the plan cannot be given here.

There is a long and favorable notice of the *Fruit Cultivator*, a new work by Mr Rogers, from which we make the following extracts:

“Speaking of soils suitable for fruit trees, the author observes.”—

‘Deep rich soils, in sheltered situations, are not the most proper for the apple, though such have been most erroneously recommended by writers who ought to have known better. For it is often seen that apple trees succeed well in any kind of loam, though it be not more than one foot in depth, so as the bottom is sound and dry: the roots take an extensive horizontal range, the young wood is always of more moderate growth, and better ripened than where roots strike deep into the ground.’

‘The Golden pippin being one of our most useful and esteemed hardy fruits, the author trusts he will be forgiven for entering more at large into its history and management than he has thought necessary in the preceding notices of other inferior kinds of apples, especially as there has been, for several years past, an idea prevalent, that this country was about to lose this fine fruit forever. In Mr Knight’s

Treatise on Orchard Fruit, the doctrine was first broached, that all our varieties and sub-varieties of fruits have but a temporary existence. They are raised from seed, to flourish for an uncertain number of years, and, after arriving at their maximum of health and fertility, gradually sink to decay, and at length disappear. Taking this idea as a rule, the Golden pippin was judged to be in this last stage of existence; and it was predicted, that not only were the old full-grown trees to disappear, but all the young ones, lately worked from them, would perish also. It must be admitted, that a great majority of the old Golden pippin trees in Herefordshire, and in other parts of the kingdom, were, about the time Mr Knight wrote his treatise, in an apparent state of decay; and, moreover, that young trees of the same sort could but with difficulty be made to grow and bear so freely as they had previously done. These failures, however, were accounted for in another way than that propounded by Mr Knight. It was observed, that the old trees, having probably all been planted about the same time, and having arrived at their natural period of healthy existence, were like all other trees, falling to decay from sheer old age; and that the contemporaneous weakness and debility of the young lately planted trees were caused by a careless choice of grafts, by working them on improper stocks, and planting them in old worn out soil, instead of in fresh, well-trenched, light, loamy situations. This latter opinion was the more feasible, because there were many middle aged trees in different parts of the kingdom, which were in full vigor and bearing; and though young plants planted in old gardens and orchards were unthrifty, such as were properly planted in newly broken-up ground, provided they were worked on the best crab stocks, succeeded as well as ever.

‘ This being the opinion of the author respecting the failure of the old Golden pippin, and all other sorts of apples, he gave the subject his best consideration, and set about proving how far his own conjectures were well or ill founded; and, after the experience of forty years, he has come to the following conclusion; viz., that if crab stocks be raised from the most healthy wild trees, properly treated, and planted out in the nursery, and worked with the most healthy moderate-sized scions, cut from the top of sound healthy trees, and, when fit for final transplantation, be placed on well-trenched light fresh loam, having a dry bottom of rock or chalk, the trees will assuredly prosper without fear of disappointment. On the other hand, if the graft be taken indiscriminately from any tree, or from any part of a

tree, and placed either on free or paradise stocks, the young trees so raised will, nine times out of twelve, be in some respect or other defective; and particularly if they be not afterwards planted in their favorite soil, where their wood would not be sufficiently ripened.

'The Golden pippin requires a dry and moderately warm climate. The best fruit are produced in Normandy on the Continent, in Sussex in England, and on walls in Scotland. The south of France is too warm, and the richer counties of England and Ireland are too moist. This apple is supposed to have been first raised at Parham Park, on the South Downs of Sussex.

'It has been noticed of late years, that neither the Golden pippin nor Nonpareil keep so well as formerly. The author well remembers, that, sixty years ago, both these kinds of apples were plentiful in May; but it is not so at present. This is attributed to two causes; our summers lately being more moist, and perhaps too many free and paradise stocks used in their nurseries. It has been deemed a good practice to raise the Golden pippin from cuttings or layers. This plan is quite practicable; and some practitioners have been very successful in raising plans from cuttings, intended for potting. Trees may also be raised by layers from stools kept on purpose in the nursery.'

'The White Muscadine grape, which the author (p. 221,) considers as the Chasselas musqué of the French, appears to be rather their Chasselas de Fontainebleau. The berries of the latter are clear, while those of the former are tinged with yellow.

'Millet's mignonne peach forces well in pots or boxes. Mr Brown, gardener to the late Lord Cremorne, at Chelsea, kept all his trees in tubs or boxes, like orange trees, for years, and supported them chiefly by the use of liquid manure. This was composed of soft water, horse droppings, and a little soot. The sort Mr Brown considered best for growing and forcing in this manner were, the French mignonne, Violette hatif, Early admirable, Millet's mignonne; and, for later fruit, the Bellegarde.' (p. 279.)

'Of the Scotch pear, the Winter Achan, Mr Rogers observes that the fruit does not arrive at so great a perfection in the south of England as it does in Scotland. (p. 321.) However paradoxical this may seem, experienced gardeners know it to be a fact. The skin of this fruit is smooth, of a dull brown color, covered with gray dots. The pulp is melting, juicy, and of a good flavor.'

"In speaking of the walnut, we are told, —

'The nuts should not be gathered till the outer covering parts rea-

dily from the shell, which is before the former becomes mealy. There is a critical time at which the covering leaves the shell without staining it, which they are apt to do if allowed to become soft. When shelled, they should be well dried in the sun for a day or two, and then stored away, either on shelves in an airy room, or packed in jars or boxes, among dry white sand, which improves the color of the shell, and keeps the kernel more moist.

‘A decoction of walnut leaves is sometimes useful in gardens; it kills earth worms: and if gooseberry trees are sprinkled with this liquor soon after the leaves are expanded, it defends them from the caterpillars.’

‘*The Economy of the little gray Moth (Yponomeuta padélla.)*—No insect makes greater havoc of our white thorn hedges and apple trees [and various other trees,] than the little gray moth (*Yponomeuta padélla Latreille.*) Wherever the caterpillars of this insect seat themselves, they appear to be congregated in vast numbers: every spray is covered. The leaves vanish before them; so that by mid-summer, not only single trees, but whole orchards, and entire hedges from end to end, are completely defoliated. Their depredations cease when their change into chrysalis [pupa] states take place, leaving the trees covered with the webs (or rather, silky threads,) by which they transport [the caterpillars had transported] themselves from place to place; and every leaf shrivelled, as if scorched by fire. — *J. Maine*, ix. 570, 571.

“These effects are familiarly known to many, but not so, or less so, have hitherto been the following points in the insect’s economy: the time and place in which the mother moth deposits her eggs, the time at which the caterpillars are hatched from the eggs, and their course of feeding from the time of being hatched to the time at which the effects of their ravages command our observation of them. These points have been elucidated by the investigations of the late Mr E. W. Lewis, and by his brother, Mr R. H. Lewis from a communication on this subject by the latter gentleman, published in the *Transactions of the Entomological Society of London*, we quote the following particulars: — ‘The mother moth deposits her eggs in the preceding year, generally on the same twigs, and chiefly on their under surface, in a circular patch about one and a half line in diameter, which she covers over with a strong gluten, at first of a pale yellow, but which is afterwards, by the action of the atmosphere

and rain, changed to a dark brown, very closely resembling the bark of the tree, and is then very difficult to be distinguished from it. The eggs hatch early in the autumn (the exact time I did not ascertain: I found them hatched the beginning of October,) and the larvæ remain in confinement during the whole winter, under the covering which is formed by the gluten and egg-shells. If we now raise up one of these excrescences, we shall find it hollow inside, and containing two dozen or more larvæ, of a pale yellow color, with the head and a corneous plate on the first segment black, and about a half or two thirds of a line long. In these receptacles they increase somewhat in size: the bark of the tree beneath is moist and green, but whether, or in what manner, they derive nourishment from it I am at a loss to say.

‘About the time that the trees are coming into leaf they make their escape: but they do not now commence spinning webs; they cannot yet eat the epidermis of the leaves, and they require some protection from the cold and rain, which their tender frames are not yet fitted to endure; to effect which they *mine* into the leaves, eating the parenchyma [cellular tissue] only, and leaving the epidermis untouched.

‘Having acquired sufficient strength to withstand the vicissitudes of the atmosphere, and to devour the epidermis of the leaves, they make their way out; and the anxious gardener, who has hitherto only observed the brownness of the leaves, caused by the mining, but which is by him attributed to the withering blast of an easterly wind, is astounded when he perceives myriads of caterpillars swarming on the trees, and proceeding with alarming rapidity in their devastating course. The fact of their mining sufficiently explains the reason of their sudden appearance: it shows how one day not a single caterpillar may be visible on the trees, and the next they may be swarming with larvæ of so large a size as to rebut the idea of their having been recently hatched.’ Besides, their latter habit of feeding on the leaves externally is so little like their former one of feeding on them internally, that any one who had not satisfied himself by examination that both habits are proper to the same caterpillars would scarcely suppose this to be the case. While the caterpillars are within the leaves, they are ‘of a yellowish color, though they become darker at each change of skin. It is in this state that I would recommend their destruction, by gathering and burning every leaf which by its outward appearance betrays the internal ravages. Their nests are so difficult to discover, that searching for them seems entirely out of the question, and I am

much afraid that, could any wash be conveniently applied to the small twigs, whatever might be sufficiently powerful to penetrate the glutinous covering would at the same time injure the tree.

'The future proceedings of the insects, while they cover the trees with their webs, have been so well described by others, and are altogether so well known, as to need no description here.

'Having satiated themselves with the growing hopes of the gardener, who endeavors but in vain, to stop their destructive career, they prepare for the pupa state by spinning strong white cocoons of an ellipsoidal form. In a short time they emerge from their pupæ, and may be seen in the evening, but more particularly in the early morning, flying by hundreds round those devoted trees which are, in the following year, to be the scene of similar ravages, unless circumstances for which we cannot account should prevent their multiplication.' "

On Acclimating Plants in England.

"*Australian Trees at Coed Ithil, near Chepstow*, the residence of Capt. R. H. Fleming, R. N.—The blue gum (*Eucalyptus*) stands frost as well, or indeed, rather better, than the common laurel. It has been planted three years, having at planting a stem about the thickness of a tobacco-pipe, and about two and a half feet high. It is now more than sixteen feet high, and the stem is thicker than a stout man's arm. Notwithstanding the late sharp frosts the tree retains its strong and peculiar fragrance, and the whole of the foliage is as perfect as it was during summer. The long-leaved wattle (*Acacia* sp.?) thrive equally well; as does also the bugwood (*Acacia verticillata*), of which I have three specimens which resemble trees of furze, and are remarkably hardy and beautiful. I have a number of other Australian trees and shrubs here, of which I expect soon to send you the particulars. During the late frosts I heaped sheet ice round the roots of all the trees, so as to touch their barks, but they were not at all injured by this ordeal.—*R. H. Fleming. Coed Ithil, Jan. 15, 1835.*

"*Australian Trees in Mackie's Nursery, Norwich.*—There is a tree of *Acacia dealbata*, or *affinis*, 15 ft. high, 5 in. in diameter at 1 ft. from the ground, and with branches covering a space 12 ft. in diameter. Its shape is pyramidal, and its bark smooth and of a greenish gray color, though when old, it becomes rough like that of the oak. It grows in a light loam, with a sandy subsoil, and in a northeast exposure. It has stood out here unprotected four winters without

receiving the least injury from frost, and is now a very handsome specimen, completely covered with flower buds, which expand the beginning of April. It ripened a little seed last year. I have tried many other species of acacias in the open air, but I have found none so hardy as this. The name I received with it from Van Diemen's Land was 'black wattle mimosa.'—*F. Mackie, Nov. 28, 1834.*

"It is stated in an Australian newspaper, that the *Acacia melanoxylon* and the *Prostanthera* also stand the open air at Norwich. The white gum (*Eucalyptus resinifera*), the most tender species of *Eucalyptus* in Van Diemen's Land, though killed to the ground as a standard, it is said to thrive against a wall when protected during winter by a mat. We should be glad to have some particulars of these and of other Australian trees which have been tried in the open air in different parts of England. — *Concl.*

"*Sida pulchella*, which produces its clusters of beautiful white blossoms in the gullies about Sunday Bay, and at the foot of Mount Wellington, in the neighborhood of Hobart Town, in the depth of winter, there can be no doubt, would stand the open air quite well in England. A very beautiful species of this genus, which had stood the winter at Redleaf, in Kent, in the garden of W. Wells, Esq., was exhibited at the London Horticultural Society, Feb. 17, 1835." (*See report of the Hort. Soc.*

FORCING THE PEACH.

MESSRS EDITORS—In the third number of your interesting Register, page 98, I find a description of a house for forcing the cherry, a front wall is there recommended "two feet above the level surface of the ground"—"on the front wall upright sashes of two and a half or three feet in height may be placed"—that is, the wall and sashes will make the total height of the front side four and a half or five feet high—Is it so?

My object, however, at present is to beg the favor of some of your experienced gardeners to give the best and most economical plan for a peach house, and if accompanied with a cut and very minute descriptions, it would be still more valuable. Also the best method of managing peach trees in such situations. In my country we can raise cherries very well—but the peach does not always ripen so perfectly, as in situations a little further south. Yours, &c.,

A DOWN EASTER.

[For the Horticultural Register.]

HORTICULTURAL AND SCIENTIFIC NOTICES.

THE effects of the past winter, (unparalleled in severity) on exotic trees and plants in different sections of the United States, is worthy of attention, and we should be pleased to hear in what districts and exposures half-hardy plants have best escaped the intensity of the past season. The crop of peaches as far as we can learn in the State of New York is mostly destroyed, and in many cases the older and more enfeebled trees themselves have perished by the severe cold. It is remarkable that the almond and apricot, which are generally believed more tender than the peach, have survived the winter better, and in most cases have put forth a fine show of blossoms, whilst the peaches by their side are totally destitute of a vestige of bloom. On looking over the garden, we are surprised to observe the fine appearance of some plants, formerly supposed quite tender, but which it is now incontestably proved, in good situations are perfectly hardy. Among these may be mentioned the Tree-Pæony (*P. mou-tan*), the *Sophora japonica*, and the Chinese purple Magnolia. Whilst the common Laburnum, generally quite hardy, has been killed in many instances, to within a foot of the ground, the above plants have retained their vitality without a particle of covering. *Tamarix gallica*, *Lonicera flexuosa* and the Corchorus or *Kerria japonica*, have in many specimens shared the same fate as the laburnum, and are now shooting up vigorously, from the lower part of the stems. It is gratifying to observe the perfect hardiness of the Chinese *Ailanthus*, and drawing our inferences from the past winter, this fine and stately ornamental tree will thrive in any part of the Canadas.

The past season has not only been remarkable for an unprecedented low range of the thermometer, but the present spring has been and is still unusually backward. This may be seen by a comparison with the four preceding years, selecting three plants in each month as a horticultural index of the forwardness of vegetation.

	1831.	1832.	1833.	1834.
Yellow Crocus — in bloom	March 14	12	22	2
<i>Daphne mezereum</i> and } Spanish Filbert, }		27	29	25
Common Liverleaf } <i>Hepatica triloba</i> , }	April 2	10	5	2

		1831.	1832.	1833.	1834.	
Fragrant violet <i>Viola odorata</i> ,	}	April	8	14	6	4
Shad bush <i>Aronia botryapium</i> ,			17	26	15	16
Single White Narcissus <i>Narcissus poeticus</i> ,	}	May	10	11	5	6
Garden Tulips,			13	17	12	18
Blue Columbine <i>Aquilegia vulgaris</i> ,	}		23	31		26

The present year, 1835, the yellow Crocus, generally in bloom from the last of February to the 14th March, was not in flower until the first of April; the Mezereon the 6th, and the *Viola odorata* the 17th, and the *Aronia* not until the 1st of May. Even now, May 18th, the single white Narcissus is scarcely in bloom, and the blossoms are but just falling from the fruit trees, which are generally in full expansion by the middle of April. Altogether, the last six months have exhibited a temperature more in accordance with the latitude of Quebec, than that of New York, or the middle sections of the United States.

A new work on the Grasses of North America. "The Gramineæ and Cyperaceæ, of North America, by Asa Gray, M. D., New York." Parts I. and II. of this excellent work, each containing specimens of one hundred different species of the grape, &c. preserved in the finest manner are already published by Dr Gray. The work consists of authentic dried specimens of the *plants themselves*, with the most approved generic and specific names, authorities and copious synonyms. To the American botanist this work will be peculiarly acceptable, as illustrating a comparatively neglected branch of Phenogamous Botany, and as offering specimens and descriptions of some new and interesting species; whilst the horticulturist, who is not acquainted with the minutiae of botanical science, may find it a useful work of reference in the determination of the various species of grasses which improved cultivation is introducing to his notice, or which may be worth his attention among our indigenous gramineous plants.

The cultivation of aquatic plants is doubtless a refinement in Horticulture. The difficulty of commanding a sufficient supply of water in gardens at a moderate expense, is certainly one of the most weighty objections, to the more general growth of this beautiful group of plants. But in hundreds of situations, scattered over our country, the limpid stream and winding rivulet, might easily be formed into

fine expanses of water ; the surfaces of which would become perfect pictures of beauty, when clothed and bordered with choice aquatics, and water loving plants. Many of the most beautiful in the world, are natives of our own crystal lakes and water courses. The white Water Lily that

“ Sculpture like and stately River Queen,”

not surpassed either in beauty or fragrance by any other plant, would be one of the most delightful ornaments of the aquarium. The *Sagittarias* and the *Pontederias*, with their silvery and azure blossoms, would make a charming display, intermingled with the golden hooded *Utricularias*, and the white blossoms of the *Menyanthes*. *Hottonia* or the water violet, and the *Villarsia lacunosa*, though more rare, might easily be procured to give additional variety to the collection — while the margin of the pond, or aquarium might be decorated with the elegant *Cypripedium spectabile*, the exquisite blue of the Fringed Gentian (*G. crinita*), and the rich crimson of the cardinal flower, (*Lobelia cardinalis*.) *Saracenia purpurea*, so strikingly singular, both in leaf and flower, *Parnassia*, *Orontium*, and the smaller *Gerardias* with their delicate purple corollas, would also suggest themselves to the lover of aquatic plants. At the head of the catalogue of American water plants, we should perhaps place the magnificent Sacred Bean (*Nelumbium luteum*), a native of Lake Ontario, the creeks in the neighborhood of Philadelphia, and the waters of the western States. Its immense leaves, nearly the size of a parasol, and its stately blossoms, a foot or more in circumference, make it a splendid object, floating upon the still surface of the waters and crowning their azure depths with its gorgeous yellow flowers. It is also asserted that the beautiful *Amaryllis longifolia* will survive the winter, and flower finely if planted in a pond, below the reach of frost, (we have ourselves tested that the well known Calla, or Ethiopian Lily is sufficiently hardy for this purpose.) Other interesting and beautiful European aquatics, as the *Butomus umbellatus*, *Villarsia nymphioides*, and many others might be worth introduction for their beauty and rarity.

A. J. DOWNING.

Botanic Garden and Nursery,
Newburgh, N. Y. May 18, 1835. }

HORTICULTURAL ARCHITECTURE.

[Continued.]

THE garden behind the house may if large be composed of three parts.

- 1st. A grass lawn.
- 2d. Separate beds for distinct flowers.
- 3d. A boundary of ornamental shrubs.

And if, as mentioned in the preceding communication, there is water, also of an aquarium for water plants and an artificial swamp for those to which such a situation is most congenial.

The lawn may be formed either by sowing seed, in which case the small short leaved species are the best, as sheep or fescue grass — this will take, however, two or three years to bring into fine order — therefore the quickest way is to pare turf from a meadow and lay it down evenly, the pieces close to each other; they will soon join and form a continuous surface. The great beauty of this ornament to the garden consists in having it soft to tread on, and a beautiful bright green color; this can always be effected by mowing frequently, at least once every three weeks during the season of growth — in a very few years by this operation the roots become so close and thick that the rays of the sun will scarcely have power to turn it brown; while the earliest spring warmth will cause the young green shoots to overtop the short blades killed by the severe frosts of this climate, and soon exhibit a pleasant green contrast to the surrounding dull objects. After each mowing the lawn must be neatly swept, and then rolled with a roller of iron, preferable to one of stone. The edges of the walk should be kept trimmed so as to present a clean unbroken line. Such a lawn is improved by occasionally sowing a little dwarf Dutch clover, and if to be obtained a little Chamomile anthemis — this latter when pressed beneath the foot exhales a most delicious perfume, is thick, soft, and velvety to the tread, the color a darker and more beautiful green than the grass — it spreads and thickens by the constant use of the scythe. A lawn kept in this style is certainly always an object of delight to the eye, and preferable to the finest carpet for the foot — but if not neatly kept it had better be omitted altogether from the garden. The form of lawns must depend on the extent, the surface, or on individual taste; a few short and simple rules for general forms will be given in a future part of these papers.

If extensive, the lawn may be diversified by clumps of ornamental trees or if the space be small by single trees, as *Magnolia*, *Liriodendron*,

weeping Ash, &c. The *Shepherdia* would be an excellent plant for this purpose, or the Sumac with crimson berries, also the mountain Ash, deciduous Cypress (*Cypressus disticha*), purple Beech; if smaller still, the lofty shrubs would be sufficient, such as tree roses, scarlet thorn, Dutch weeping Laburnum, *Philadelphus grandiflorus*, *Rhus cotinus* (smoke plant), great flowering *Syringa*, *Magnolia glauca*, and various others too numerous to mention.

Beneath the spreading shade of these clumps of elegant foliage, the green painted rustic seat would not be in bad taste; the "*sub tegmine fagi*" of Virgil is well suited to the warm months of this climate,—unhappy poet! he knew nothing of the additional solace of the cigar on these occasions.

The separate beds for distinct flowers may be formed behind the turnings of the walk so as to come upon them unexpectedly; for instance, at a bend the eye may fall suddenly on a bed eight or ten feet long of scarlet turban *Ranunculus*, and from thence pass on to others containing mixed *Ranunculus* and mixed *Anemone*, — one for tulips, another for pinks, a bed of peat filled with *Gentiana acaulis* — if the experiment making this year prove it able to be cultivated here—makes a most magnificent shew. The Italian jonquil also forms an elegant and fragrant group. The Rosarium or bed for roses should be managed with some taste, that is, by placing the dark velvet Tuscan in close contrast to the celestial blush, and the blush hundred leaf near the white Provence or rose unique; the light colored cluster rose would be agreeably compared with the dark sanguinea — the Scotch roses may be interspersed. If the climbers, such as the Boursault rose and others, could form an entrance to this rosarium through an arched trellis, such as is often seen here devoted to vines, the effect would be delightful. Another new method of using the climbing roses has been practised in some gardens in England — instead of training them upwards, the long shoots are pegged down near each other close to the ground, the colors being properly blended in straight lines — the appearance which results from this arrangement is a complete green carpet of the leaves, the flowers appearing as a kind of pattern on the surface. *Iris xiphium*, a very cheap bulb in Holland, forms a beautiful and most amusing group; this plant is very apt to sport, that is, vary in the disposition of its colors.

The choice of ornamental shrubs is very easy, the catalogues of Messrs Winship, Kenrick, &c., near Boston, of Messrs Prince near New York, and of several in the vicinity of Philadelphia offer ample varieties. If the shrubbery constitute the boundary of the

premises it would be well to raise the earth at the back about two or three feet higher than the front — at every twenty feet a tree may be planted, such as *Catalpa syringifolia*, *Laburnum*, *Liriodendron*, (tulip tree), Larch, silver leaved Sycamore, purple Beech, *Ailanthus*, *Eleagnus*, Moose wood, &c. Between these trees place the lofty shrubs, as red and white lilac, dog wood, syringa, smoke tree (*Rhus cotinus*), snow ball tree and many others; below these place smaller shrubs as *Symphoria racemosa*, various spireas, particularly *spirea bella sorbifolia*, *lævigata*, *Rhodora canadensis*, swamp honey suckle, (azalea), altheas, mezereon, corchorus, calycanthus, *Amorpha fruticosa*, *Potentilla fruticosa*, Tartarean honey suckle, and the common Dutch honey suckle, which if kept low by the knife will be bushy and almost always in flower: in front of these may be placed the low herbaceous flowering plants as, pæonies, red, white and blush, pinks, *hemerocallis*, low Phloxes, *convallaria majalis* (lily of the valley), and others by far too numerous to mention. In planting such a shrubbery great attention must be paid not to crowd the plants too much, as in a few years they will much impede each other's growth and altogether destroy the beauty. When originally placed in the holes destined for each plant great care should be observed to turn the best side of a shrub in front and leave the worst side out of sight; it is astonishing what a difference a little attention on this point makes even in the first year's growth. The best finish for the border of such a shrubbery is a verge of fine grass not less than eight inches in width, which must be kept frequently mown and neatly edged. At intervals of ten or fifteen feet a tree rose of about five or six feet high is extremely ornamental. If the shrubbery cross the end of the flower garden, with the view of concealing the vegetable garden, then trees are not requisite, but simply low shrubs. Three or four years will probably elapse before the shrubbery will be sufficiently thick for the purpose intended; in the mean time the large gaps between the shrubs which would otherwise have a naked appearance, may be filled with lofty herbaceous and biennial flowers; I know of none more appropriate or beautiful than the red and white foxglove, Solomon's seal, (*Convallaria racemosa*, *multiflora*, *latifolia*,) Aster, *Novæ angliæ* and others, *Cimicifuga*, *Helianthus multiflorus*, the late phloxes, &c. always supposing these not to be allowed to spread so far as to injure the shrubs. One other point is necessary to mention on which much of the health of the plantation depends; it must be kept free from weeds and fungus.

J. E. T.

[To be continued.]

[From the Library of Useful Knowledge for April.]

FLORA'S TIME KEEPER.

For the amusement of those who are interested in such matters, we subjoin a *Clock of Flora*,—that is, the hour of expansion of various flowers, as it is recorded by Linnæus for Upsal, and by De Candolle for Paris:—

<i>Name of Plant.</i>	<i>Upsal.</i>	<i>Paris.</i>
Convolvulus nil and sepium		3-4 A. M.
Tragopogon pratense	3-5 A. M.	4-5 A. M.
Other Cichoraceous plants	4-5 do.	do.
Matricaria suaveolens		do.
Crepis tectorum	4-5 A. M.	
Papaver nudicaule	5 A. M.	5. A. M.
Moist Cichoraceæ		do.
Momordica elaterium		5-6 A. M.
Lapsana communis and many Cichoraceous plants	5-6 A. M.	do.
Convolvulus tricolor		do.
Hypochoeris maculata	6. A. M.	6 A. M.
Solanum, several species		do.
Convolvulus Siculus		do.
Sonchus, different species	6-7 A. M.	6-7 A. M.
Hieracium, do.	6-7 A. M.	6-7 A. M.
Nuphar and Nymphæa	7	7 A. M.
Lactuca sativa		do.
Camelina sativa		do.
Prenanthes muralis		do.
Mesembryanthemum barba- tum		7-8 A. M.
Specularia speculum		do.
Cucumis anguria		do.
Calendula pluvialis	7 A. M.	do.
Anagallis arvensis	8	8 A. M.
Dianthus prolifer	8	
Nolana prostrata		8-9
Hieracium chondrilloides	9	
Calendula arvensis	9	
Mesembryanthemum barba- tum, &c.	7-8	
Mesembryanthemum crystal- linum	9-10	9-10
Arenaria	9-10	
Mesembryanthemum nodi- florum	10-11	10-11

<i>Name of Plant.</i>	<i>Upsal.</i>	<i>Paris.</i>
Portulaca sativa	10-11	11
Ornithogalum umbellatum (called on that account Dame d'onze heures)		11
Tigridia pavonia		do.
Most Ficoideous plants		12
Scilla pomeridinia		2 P. M.
Silene noctiflora	9-10	5-6
Mirabilis jalapa	5	6-7
Pelargonium triste	6	
Cereus grandiflorus	9-10	7-8
Mesembryanthemum nocti- florum		do.
Oenothera tetraptera		do.
————— suaveolens		do.
Convolvulus purpureus		10 P. M.

SALISBURIA ADIANTIFOLIA — (ADIANTUM LEAVED SALISBURIA.)

THE city with highly credible liberality, has removed the tree mentioned in our last number, as growing on the estate of the late Gardiner Green, Esq., to Boston Common, where a little diversity of foliage is certainly wanting to complete the beauty of the spot.

From the care and judgment with which it was removed we anticipate that it will live, although a year or two may elapse before it will regain its pristine vigor.

By reference to several works, particularly to the Arboretum Britannicum, a work now in publication by the indefatigable Loudon, it appears that this plant was first introduced into Europe in the early part of last century. The largest plant in England was supposed to be one of the first introduced, and was planted in a nursery garden at Mile End near London, by James Gordon the proprietor, it is now in possession of Mr James Thompson.

This tree measures fiftyfive feet in height, and at one foot from the ground is five feet five inches in circumference, and is consequently a few years older than the specimen above named.

J. E. T.

HINTS TO AMATEUR GARDENERS.

THOSE who grow early cucumbers, or are forcing asparagus, mushrooms, grapes, &c., or have pet collections of store or green-house plants, must not depend on the promising state of the weather, when unusually mild early in the season, but take the same precautions in covering up and uncovering their houses and frames until February is gone. In pruning wall trees, leave all the wood of the last summer's growth, except the thick unsightly shoots, which never bear, but draw the sap away from the small blooming wood; in shortening back some of the shoots to produce a succession of young wood, always leave one bud or more of last year's growth. This rule holds good as regards peaches, nectarines, and Morello cherries. Other fruits generally produce fruit on spurs, formed on the two (or more than two) years old wood; but to keep a succession of healthy bearing wood, it is requisite to shorten back, from time to time, to the heart of the tree. The shoots proceeding from such pruning, to be carefully laid in, to replace the old or cankered branches. The test of judicious pruning is, to have your trees covered with fruit on every branch, and not in some moderate sized gardens merely at the extremities. If you have an old grape vine, even to the top of the house, that produces small fruit, cut it down to within a foot or two of the ground. It will produce fine shoots the following season, (I have seen such forty feet in length the first year;) these should be trained up the house, or wall, four or five feet apart, parallel to each other. Shorten them back to the strongest bud that breaks the following spring, and every other eye will produce right and left lateral shoots; those latter produce the fruit. In the first of mid-summer pruning those lateral shoots are each to be shortened back, so as nearly to meet midway; the lateral from the corresponding main shoot of last year. Every winter pruning the whole of those laterals must be cut back to one strong bud, or eye, of the same year's growth, from which bud proceeds the fruiting wood of the following summer, the main shoots always continuing in the position they were first placed in; by this simple method you may always (except when destroyed by severe spring frost) make certain of having a luxuriant crop; the wall of your house, garden, or graperies, clustered over. Regarding the pruning of fruit trees in open quarters, or espaliers, excessive pruning should be avoided, all cross branches, or those cankered, ought to be cut out clean to the parent branch. If the tree has become useless

from neglect, and your soil good, the best method is to head it back to the original stem, and in a few seasons it will produce a good tree. The only way to have fine mulberries, is to keep the knife at work on the head of the tree.

WORK IN THE FLOWER GARDEN FOR JUNE.

THE first week sow a few hardy annuals for a succession. Weeds will now be showing their third and fourth leaf, so that they may readily be distinguished; the introduction of a hoe in the early part of a hot day so as to lay their roots open to the midday sun will effectually destroy them. The day after if they are tolerably large and dry they may be raked off the beds. Prepare stakes for the tall perennials and where there is danger of their being injured by the wind tie them neatly up; observe that a stick however well shaped is always an unpleasant appendage to a plant, therefore the more it can be concealed consistent with the purpose for which it is placed, the better. In planting dahlias the stakes should always be put down when the root is planted as it is very likely otherwise to be driven through the best tubers and the root thereby much injured. There is a great art in tying up flowers neatly, so that on one hand they may not look too prim and unnatural, while on the other they may be properly secured. Do not omit cutting off the ends of the bass neatly.

The first sown annuals will now be sufficiently grown to be thinned, and this must be done unsparingly, or the result will be nothing but wiry, straggling and unsightly plants, bearing small half formed flowers.

Attend particularly to roses, look them over constantly, and destroy the small brown grub which eats into the heart of the bud. The brown and green aphid must also be taken off; the best method of effecting this is with the syringe, once in the week syringe them with tobacco water and every other day with fresh water, omit the tobacco when the color shows in the bud, and indeed pure water if frequently applied will be effectual; the difference this operation makes in the freshness and brightness of the flower and foliage is astonishing. We recommend the ladies to walk early in the morning about the rose bushes with a basket and pair of scissors to cut the roses which are about to fall, but our fair friends must use the

basket, for if left under the bushes they have an unsightly appearance, and if they remain on the trees they prevent the other buds from coming to perfection, by exhausting the juices in forming fruit and ripening seeds.

Keep all the primulæ tribe rather dry and sheltered from the heat of the sun ; take up hyacinths, crocus and all other bulbs of which the leaves have withered.

Sow biennials, as Canterbury bell (*campanula medium*) Snapdragon (*antirrhinum*), *Calceolaria*, *Commelina*, Pinks (*Dianthus*), Carnations, *Digitalis*, *Polyanthus*, and many others if not sown the latter end of May.

The tender annuals may about the second week be moved to their destined place from the frame ; they should, however, be gradually inured to the open air and be covered up in the evening, at the beginning of the month if the weather portend cold nights, and left exposed during the day. For the first two or three days after final transplantation cover them with an earthen garden pot during the midday to shade them from the sun, leaving the hole in the pot open. Those tender annuals which are to remain in pots to flower, such as Balsams, Cockscombs, Sensitive plant, Ice plant, and many others should be potted off the beginning and removed to their last size pot the end of the month observing to give them heat, shade and plenty of water for a few days after shifting.

Keep your lawns and grass verges mown and sheared at least once in three weeks ; once every week in wet weather would not be too much, and let one day be set apart every week for the gardener to do nothing but sweep and clear up the garden. Saturday is best employed for this purpose.

It will now be time to remove the plants from the green-house ; let a piece of ground be covered with three inches depth of coal ashes to keep out worms, in the form of a crescent, arrange the plants thereon, not too deep but rather extend the circle, place the tallest at the back and the lowest in front. Do not commit the usual fault of crowding them near each other ; if they are handsome, well grown plants their forms should not be concealed by a confusion of foliage, and if not well grown they should not remain there to spoil the effect, which in such a collection should be perfect and unbroken. Let every brown leaf and unsightly twig be removed, with all the flowers that have faded. Syringe them well in dry weather in the evening.

J. E. T. .

CULTURE OF MILKWEED.

It is recommended in the May No. of the Scientific Tracts, to make an experiment in cultivating milkweed, "because it has been satisfactorily ascertained, that the fibres when wrought, produces a texture quite beautiful, certainly not inferior to silk," "though it is not decided that it will be cheaper than common linen fabric." I lately saw it stated somewhere, that the juice of the plant had been found on examination not to be distinguishable from India Rubber. Perhaps the two uses may render the cultivation of the plant well worthy of attention.

W. W.

Dorchester, May 2.

 MISCELLANEOUS ARTICLES, COLLECTED BY T. G. F.

ON PROMOTING THE GROWTH OF FRUIT TREES, PARTICULARLY IN GRASS LAND. *By Rev. Mr Germenhausen.*—[From the Transactions of the Economical Society of Leipsic.]—When young trees stand in grass land, or in gardens where the earth is not dug up every year around them and freed from weeds, they do not at first increase properly in growth, and will not thrive so well as those which have been planted in ploughed or hard ground. In orchards, also, the more the ground becomes grassy and converted into turf, the smaller the fruit, and the less its flavor.

Having planted several young plum trees, I covered the ground for years, around the trunks as far as the roots extended, with *flax shows* (the refuse of flax when dressed), by which means these trees, though in a grass field, increased in a wonderful manner, and far excelled others planted in cultivated ground. As far as the shows extended the grass and weeds were choked; and the soil under them was so tender and soft that no better mould could have been wished for by the florist.

The writer states several other experiments, in which by the same means he revived an old languishing plum tree which stood in a grass field, caused it to acquire strong new bark, to produce larger and better tasted fruit, and destroyed the young shoots or suckers which every year before had sprung up about the stem of the tree. He says also that the leaves which fall from trees in autumn may be employed in like manner, but stones or logs of wood must be laid on them to

prevent their being dispersed by the wind. In grass land a small trench may be made about the roots of the tree, when planted, in order to receive the leaves. If flax shows are used this is not necessary; they lie on the surface of the ground so fast as to resist the force of the most violent storms. The leaves which I have found most effectual in promoting the growth and fertility of fruit trees are those of the walnut tree.

Those who are desirous of raising tender exotics from the seed, in order to accustom them to our climate may, when they transplant them, employ flax shows to great advantage. This covering will prevent the frost from making its way to the roots; and rats and mice, on account of the sharp, prickly points of the flax shows will not be able to shelter themselves under them.

NEW MODE OF MAKING JELLY OF FRUIT.— Press the juice from the fruit; add the proper portion of sugar, and stir the juice and sugar till the sugar is completely melted; and in twentyfour hours it will become of a proper consistence. By this means the trouble of boiling is avoided, and the jelly retains more completely the flavor of the fruit. Care should be taken to stir the mixture until the sugar is completely melted, and fine sugar should be used.

HOW TO PRESERVE FRUIT FRESH THROUGHOUT THE YEAR.— Beat well up together equal quantities of honey and spring water, pour it into an earthen vessel, put in the fruit all freshly gathered, and cover them quite close. When the fruit is taken out, wash it in cold water, and it is fit for immediate use.

OIL OR BALSAM OF GILEAD, HOW OBTAINED.— Put loosely into a bottle of any size as many balm of Gilead flowers as will reach to about one third part of its height, then nearly fill up the bottle with good sweet oil and after shaking it occasionally and letting it infuse a day or two, it is fit for use. It must be very closely stopped, and will then not only keep for years, but be the better for keeping. When it is about half used, the bottle may again be filled up with oil, and well shaken; and in two or three days, it will be as good as at first. The most alarming cuts and bruises of the skin, which are frequently rendered worse by spirituous balsams, salves, &c., are completely cured in a few days, and sometimes in a few hours, by this oil.

GARDENER'S WORK FOR JUNE.

BY T. G. F.

Kitchen Garden.— If the season be at all dry, your garden vegetables will need water. Vegetables that are newly transplanted, as they have their roots more or less diminished, or otherwise injured, often need watering till they have taken new root. But this should be done with caution. If a dry season follow transplanting, let them be watered if they appear to droop, only on evenings, and in cloudy weather, and with water that has been exposed one day at least to the rays of the sun, not with water directly from a well or cold spring, as that will chill the plants. Only a small quantity should be applied at once, that it may have an effect similar to that of a refreshing rain; for water applied too plentifully, sometimes washes away the finest of the mould from the roots or makes little cavities about them, which admits too much air.

Dr Dean observed, that “ In a dry season, whole gardens sometimes need watering; and they are happy who have a piece of standing water in their garden, or a rivulet near at hand, from whence the garden may be watered without much labor. Be careful to keep your crops clear of weeds. Thin forward melon, cucumber and squash plants, leaving only two or three in a hill. Attend to your cabbage plants, cauliflower plants, &c., and destroy the cut worm, as directed page 191. Thin out and earth up all your plants; and recollect that frequent hoeing is a substitute for rain, and serves as manure to vegetables. Support the stems of such plants as were planted out for seed. Onions and leeks, in particular, will require attention of this kind; for their stalks will soon shoot up to considerable height, and should be secured in season, or winds and rains will beat down and spoil them. Seed cabbages and other tall growing plants will require similar care.

M'Mahon observes that “ The best method of supporting plants, intended for seed is to drive firm stakes into the ground along the rows, placing them about two or three yards asunder; then let some thin long poles, or strong lines be fastened from stake to stake, close along each side of the seed stalks.” The same method has been adopted with success to support peas, &c., in rows. Weeds after being cut up with a hoe, &c., should not be left to wither, or to rot above ground, but should be covered with soil, buried between rows of vegetables, or carried to the hog pen or manure heap. Stir the ground about your plants in due season.

A cultivator to run between rows of plants, where it can be effected, will, in a great degree answer the purpose of both ploughing and hoeing. Sometimes deep hoeing is useful in order to prevent the soil from becoming too compact, which hinders the roots from extending themselves freely in search of their food. At other times, and particularly when the roots are considerably extended, hoeing should cease, or be but superficial. But never suspend hoeing in consequence of drought, for the more the ground is stirred the less it will suffer from dry weather.

About the beginning of this month melons, cucumbers, &c., which have been protected by glasses or paper frames may be exposed to the air, having been previously inured gradually thereto. A piece of shingle, a bit of board or slate may advantageously be placed under each fruit of your early melons to preserve them from the dampness of the earth. This, however, judging from present appearances will not be necessary for plants raised in the open air till some time in July or August. With regard to protecting melons, squashes, &c., against bugs and flies, we believe the best and safest way will be to enclose the young plants with wooden frames, covered with millinet. Towards the last of this month celery plants may be set out in trenches. When the plants have grown as high as eight or ten inches, draw earth about them, breaking it fine. This should be done in dry weather, being careful not to bury the heart. Plant out cabbages, cauliflowers, broccoli, &c. in moist or cloudy weather, but not when the ground is wet and heavy. Perhaps, towards the last of this month it will be the right season to cut and dry many sorts of herbs, such as mint, balm, lavender, sage, rosemary, &c. These are gathered for drying, for distillation and other purposes. They should be cut off, when just beginning to come into flower, and laid in the *shade* to dry gradually, which will render them much better for every purpose than if they were dried in the sun. Hoe and bush peas; plant more potatoes, succession crops of kidney beans, peas, small salads, and lettuce every week or ten days.

Fruit, Garden and Orchard. — The direction for last month, under this head will mostly apply to the labors of the present. Should your cherries be sufficiently ripe to invite the trespasses of birds it will be expedient to hang up nets wherever practicable to keep birds at a distance from the fruit. Watering the strawberries, if the weather be at all dry will cause their fruit to set well and to swell freely. Let not, however, water be given *over* the plants but *between* them.

lest you wash off the pollen or fecundating dust from the flowers, and thus prevent their setting fruit. Sir Joseph Banks, from a variety of experiments recommended laying straw under strawberry plants, when the fruit began to swell, by which means the roots are shaded from the sun, and waste of moisture by evaporation prevented, the leaning fruit kept from damage, by resting on the ground, particularly in wet weather, and much labor in watering saved. Others have recommended placing pine boards, shingles, slates, or grass cut from lawns on the ground between the rows, and under strawberry plants. Grass is said to be useful in a particular manner, by shading and manuring the ground, at the same time that it makes a clean bed for the fruit to rest on. If any of your peach trees, nectarines, and apricots, more especially young trees appear to be overburdened with fruit, the surplus should be pulled off, and no more be left than you may judge the trees will support and bring to full maturity without being injured by overbearing.

Vineyard. — Though vines may now require some attendance, great care will be necessary lest the blossoms should be broken off or injured. Let the shoots, as they advance, be tied up to stakes, but not too close. Towards the end of the month, or when the bloom is over, and the fruit is set, if the weeds have made much progress they should be extirpated by the most convenient means, by the hoe, the plough, cultivator, or otherwise.

“Young vines of one two or three years' growth, should now be carefully tied to the poles placed for their support, and never suffered to trail about on the surface of the earth; the ground must be kept perfectly free from weeds, as these would rob the plants of a great portion of their nourishment, and exhaust the ground to no purpose.”*

The Nursery. — “Most kinds of evergreens and deciduous trees and shrubs may now be propagated by laying the present year's shoots; being soft and tender, they will emit roots much more freely than the older wood; and several sorts that would not root for two years if laid in the spring or autumn, by this method, will be well rooted the autumn twelve months after laying, and many kinds before the ensuing winter.”†

* M'Mahon.

† Ib.



TRILLIUM PICTUM.

For the Horticultural Register

Fendler's Lith. Boston

THE
HORTICULTURAL REGISTER

AND
GARDENER'S MAGAZINE.

JULY 1, 1835.

TRILLIUM PICTUM OF PURSH.

ERYTHROCARPUM of Michaux.

UNDULATUM of Willdenow and Elliott.

For the plant from which the figure on the other side was taken, we are indebted to our valuable correspondent, Mr JOSEPH BRECK, of the Horticultural Garden at Lancaster, who gathered it somewhere in the vicinity of that town; and we think a discerning public will be pleased at our occasionally making them better acquainted with some of the beautiful native ornaments of American scenery.

This flower belongs to the class Hexandria trigynia (six stamens, three pistils) of Linnæus, and to Smilacæ of the Natural System, and has received its name, Trillium, from *trilix*, triple, as it possesses

Three styles;

Three petals (leaves of the flower);

Three sepals (leaves of the calyx);

Three leaves on the stem.

It has not hitherto been discovered in any other country except the United States, and the only botanical work in which it has been figured is an early number of Sweet's Flower Garden. This we have not seen, but from the character of the work do not doubt that it is given there correctly.

We coincide with Dr Bigelow, in his *Florula Bostoniensis*, that it is a very handsome species, particularly as the fruit is rather a large scarlet berry. The only locality he gives for it is the Ascutney mountain, Vermont. Dr Torrey says it is found in Sphagnous

swamps, near Deerfield; in the Cedar swamps, New Jersey; near Williams' College; and on mountains in Pennsylvania. Pursh says also in swamps on the mountains in Pennsylvania.

We have gathered *Trillium cernuum* (nodding) in woods near Dedham, and believe it common in other places; although the least beautiful of the tribe, it is still elegant and interesting; the flower is pure white, much smaller than *picturnum*. *T. erectum* (upright) is also found occasionally in old woods in New England; it is a dull purple color, larger flowered than *Cernuum*.

TRILLIUM sessile (sitting) — the flower not having any footstalk; has only been found in South Carolina; it is a dark chocolate color, the leaves beautifully variegated with dark and light green.

TRILLIUM grandiflorum, of Salisbury, is probably the handsomest of the species. We have never been sufficiently fortunate to find it, and do not believe it is to be met with in New England, although we should be glad of information to the contrary. The petals are one and a half to two inches long, white at first, gradually changing to a dark rose color; the berry dark purple. It is found in Pennsylvania, in Vermont, and at Black Rock, Lake Erie. If any of our friends in these localities should meet with it, and forward a box of plants, well covered up with wet moss, addressed to us, at Mr Geo. C. Barrett's, we would gladly pay the expense of packing and carriage, being desirous of making experiments on the cultivation of this, and other indigenous plants of this country, very many of which far surpass in beauty and fragrance, some of those imported from foreign countries at great expense and risk.

Those who are desirous of also pursuing this interesting subject, would do well if possible themselves to procure the plants from their native spots (habitats, as botanists term them), and while there to make the following observations, which appear important in the experiment of cultivation:

1st. *As to situation*. — Whether the plant grows wholly in water, on the edge of a running stream, in swamp mud, or on the high and drier part of a swamp; whether wholly or partially under the shade of trees, on dry plains, or exposed sunny banks and sides of hills.

2d. *As to soil*. — This comprehends not only surface, but subsoil; for many plants send roots deep into the earth, and draw their support from the lower stratum, while of others the roots creep an inch or less beneath the surface, and can only flourish in the decomposed leaves which annually enrich the top of the ground. This is the

case with the *Dracæna borealis*, which I found a few weeks since at Plymouth; the roots run close beneath a surface about two inches deep of very sandy, moist, black leaf mould; under this is a very sandy gravel, which appears to allow wet to percolate freely through; into this the roots do not penetrate at all. The nature of the soil must then be taken into consideration. For instance, *Epigea repens* appears to prefer a sandy bed, and has not thriven well with me in mere bog earth; I have now put some in a mixture of two thirds sand with one third black soil, where it grows luxuriantly, and have stuck some cuttings this spring in sand alone. The leaf and stem of this plant is rough and harsh, like the stems of the *Equis-etacæ*, some of which are used in Holland for polishing, owing to the quantity of silex (of which sand is chiefly composed) they contain. This silex is very minutely dissolved by the action of the alkali formed during annual vegetable decomposition, and thus enters in a liquid form into the vessels of the plant, where it is again deposited, and is thought to cause the rigidity of stalks; it is found in different proportions in all soils, and is essential to most plants, but some from their peculiar structure need a larger supply of it than others.

I have taken up *Cypripedium acaule* early this spring from the roots of old decayed trees, with vegetable substances lying lightly over it; in this it appeared to luxuriate, and therefore I planted it in a deep bed of decaying saw dust, bark, sand, and a little old manure, and it has flowered finely; and my intention is to cover the plants over for protection during the winter with more saw dust and moss; but the peculiar nature of orchideous plants will hardly permit a fair decision on any mode of their cultivation, until it has stood the test of two or three years' experience.

Many plants lie deep in the earth, almost out of the reach of frost, and are even then additionally protected by moss and other herbage which covers the surface; if these are transplanted into the garden without attention to this particular, they are very liable to be destroyed by excessive cold. In England, many plants which are indigenous to this section of the United States, are preserved during winter in glass frames without heat.

Bulbous plants, and others which have broad or narrow leaves with veins running parallel to the midribs (monocotyledonous plants), such as *Lilium*, *Convallaria*, *Erythronium*, &c. should have their leaves protected from rubbing during their carriage; several plants of the *Dracæna* before mentioned, of which the leaves were much injured,

appear going off, but those which arrived untouched look very thriving.

We were delighted to see the *Gerardia*, transplanted last autumn, springing up vigorously in a garden in our neighborhood ; and hope to see farther attempts of this nature succeed.

In a most interesting memoir by Moses A. Curtis, A. M., published in the last number of the *Boston Journal of Natural History*, on the plants growing spontaneously around Wilmington, North Carolina, I find the following notice—

“ No. 39. *Bletia aphylla*. Superior every way to *Bletia Tankervillei*, with the odour of *Iris verna*.” *McRee in Lit.*

How very desirable it would be to see this plant cultivated in the conservatories in this vicinity, with many others equally deserving such attention, which now unknown and disregarded,

“ Waste their sweetness in the desert air.”

J. E. T.

ON THE PEACH ; ITS VARIETIES AND CULTIVATION.

THIS delicious fruit being very generally cultivated throughout the United States, and therefore, of course, all information regarding the species and their culture of great interest, I have endeavored to select from the most recent and authentic sources, both in America and Europe, such notices of varieties as might be of real, practical utility.

The peaches grown under the Italian sky, according to the practice of this country, on standard trees, are generally allowed to have the finest flavor ; the writer, when in Paris, frequently ate the celebrated peaches from Montreuil, and they well deserve the reputation of second in rank, which they have acquired : they are grown against walls in the open air. In England they frequently ripen well on south walls, are very rarely good for anything on standards, but considerable quantities are grown with the assistance either of artificial heat or of glass. One tree in Suffolk, England, covers six hundred square feet of trellis under a glass case, without heat, and ripens annually sixty to seventy dozen.

The nectarine is a mere casual variety of the peach, and there are several very well authenticated cases of the peach and the nectarine ripening on the same branch of one tree.

The varieties raised from seed are innumerable. Many of them, though excellent, have not been noticed in any publication, and are therefore without names. From the named varieties I shall select those which are considered the finest, and give the character of the leaf, flower and fruit, but will first make a few observations on raising new sorts from seed.

Mr Knight has given a valuable paper on this subject in the first volume of the London Hort. Transactions. It appears that seedling peach trees may be made to bear in three or four years, by growing them in pots properly numbered and registered in the memorandum book, and inserting buds into full grown trees, which will fruit in two years and show the quality of the seedling. Mr Knight, by not cutting the lateral branches which grow near the extreme end of the shoot, and exposing the plants as much as possible to the sun, so as to ripen the wood, obtained blossom buds on seedlings two years old.

The celebrated varieties called *Acton Scot* and *Spring Grove* were produced by hybridising the large *French mignon* with the little *Red Nutmeg*, it being found a general principle, that the most perfect and vigorous plants are produced when the admixture takes place between those which differ most widely from each other.

In this case the two originals were planted in large pots, and brought by proper soil and cultivation into a state of vigorous health. After impregnation by the pollen, they were placed in a house where they were protected from mixture of other sorts, and only three peaches left on each, the stones of which were sown and produced the above excellent varieties.

Those who delight in experiments on raising new varieties of fruit, may, therefore, easily indulge their taste without the discouraging reflection that many years have to elapse before they can arrive at the results of their labors.

For farmers and those in the country who depend on peach orchards, it is wise always to have a considerable quantity of seedling trees, both for grafting stocks and for the chance of new sorts; but those who have merely room for a dozen trees, had always better apply to the nurseries, as they make it a business to have a stock of the sorts found by experience to excel in flavor and bearing.

Adjoining the leaf stalk on each edge where the leaf begins, are one or more small knobs, called *glands* by botanists. These form distinctive characters for the leaf. In some they are wanting, in others they are round or *globose*, and in others they are kidney-shaped

or *reniform*. This is readily discoverable with a magnifying glass of moderate power, and even with the naked eye.

Of some varieties the blossom is large and spreading, in others it is small and more closed. This is another character by which to distinguish: the remaining ones are derived from the fruit and the stone; whether the former is soft and melting, separating readily from the stone when ripe, and termed the *freestone peach*, or whether it is firm in its texture, adhering to the stone, and called the *clingstone peach*.

FREESTONE PEACHES.

ACTON SCOT. Leaves with globose glands; flowers large, open; fruit middle size, pale yellow and red, ripens end of August.

EARLY ADMIRABLE. *Belle de Vitry* of the publication *Le bon Jardinier*. Flesh white, red at the stone, ripens end of August.

KNIGHT'S EARLY SEEDLING. Leaves with globose glands; flowers large; fruit middle size, pale green and dark red, ripens middle of August.

CAMBRAY. Leaves without glands; flowers large; fruit large, pale green and red, ripens end of August.

HOFFMAN'S WHITE. Leaves with reniform glands; flowers small; fruit middle size, white and red, ripens early in September.

EARLY DOWNTON. Leaves with globose glands; flowers large; fruit middle size, pale yellow and red, ripens middle of August.

VIOLETTE HATIVE. *Bellegarde* of others. Leaves with globose glands; flowers small, pale; fruit large, pale green and dark red, ripens beginning of September.

ANSLEY'S COLONEL. Leaves with globose glands; flowers large; fruit large, pale yellow and red, ripens early in September.

BRADDICK'S RED. Leaves without glands; flowers large; fruit large, handsome, pale green and dark red, ripens end of August.

MADELEINE DE COURSON. *French Magdalen*. Leaves without glands; flowers large; abundant bearer; fruit middle size, pale yellow and red, ripens end of August.

MADELEINE DE BOLLWILLER. Leaves without glands; flowers large; fruit middle size, pale green and dark red, ripens middle of September.

MALTA PEACH. *Malte de Normandie*. Leaves without glands; flowers large; fruit middle size, pale greenish and red, ripens in August, of excellent flavor, and keeps well after gathering.

EARLY MIGNONNE. *Small Mignonne.* Leaves with reniform glands; flowers and fruit small; ripens early in August, fine flavor.

MOUNTAINEER. Leaves with globose glands; flowers large; fruit large, pale yellow and red, ripens early in September. Fruit smoothish, being a hybrid between the red nutmeg peach and *Violette hâtive* nectarine.

ROYAL GEORGE. Leaves without glands; flowers small; fruit large, green white and red, ripens end of August; an excellent bearer, and very good for forcing.

SPRING GROVE. Leaves with globose glands; flowers large; fruit middle size, pale green and red, ripens end of August.

WILLIAMS' SEEDLING. Leaves without glands; flowers small; fruit large, pale green and dark red, ripens in August.

CLINGSTONE PEACHES.

CATHARINE. Leaves with reniform glands; flowers small; fruit large, pale green and red, ripens end of September.

CLARET CLINGSTONE. Leaves without glands; flowers large; fruit middle size, dark red, ripens in October.

HEATH CLINGSTONE. Leaves with reniform glands; flowers small; fruit large, pale yellow and red, ripens end of September.

The foregoing are all ascertained of the finest flavor, size and beauty. There are some either not so well known to us, or certainly inferior to the above. A few of them will be described, that those who have them may examine their trees.

Montague. Leaves with reniform glands; flowers large.

French Sweetwater. The same.

President. Leaves with globose glands; flowers small; fruit large, pale yellow greenish and red; a good peach.

Vanguard. Leaves with reniform glands; large blossom; fine, melting, ripens end of August.

Téton de Venus. Leaves with globose glands; flowers small; fruit light red and yellow, melting, sweet and rich.

There are no doubt many others deserving of notice, which we shall be happy to add to our catalogue, if those who possess them will send us authentic details. In our next communication, we will give the best sorts of Nectarines and Apricots.

The number of Peach trees destroyed by the intense frosts of the past winter will render considerable renovation of the Peach orchards

necessary, and therefore make such lists of good trees valuable, particularly if they can be relied on as authentic.

The soil most preferable for the Peach tribe is a dry light sandy loam, moderately enriched with vegetable manure; if it is too rich the tree will probably be made tender in the shoots, and less likely to endure the winter; also more liable to cankers. Forsyth says that Peaches require a lighter soil than Pears or Plums. A cold, damp soil does not suit them at all.

The Peach is generally budded by preference on the Damask Plum stock, but seedling Peach, Almond, or Apricot stock will answer nearly as well. This operation is best performed in July; the shoot from it should be headed down the following year, and the tree removed to the spot where it is destined to remain.

As the Peach tribe bear fruit on the ripened wood of a year old, all pruning must be carried on with a chief view towards this object, cutting out parts of over strong and luxuriant branches, which are more apt the succeeding year to bear wood than fruit; also, the smaller twigs, when too numerous, and interfering with each other; this promotes a healthy growth of those left; deformed and weakly branches should likewise be removed. In spring pruning, wait until the blossom buds are quite visible; then shorten all long thin shoots by cutting about half an inch above the leaf bud, never just above the blossom; although it sometimes happens that a leaf bud exists between two blossom buds, it is then safe to cut above this.

Harrison's rule is, never to allow the shoots left for bearing fruit to run far from the strong wood; therefore in pruning in the autumn, the bearing branches for the succeeding year are shortened, so as not to leave more fruiting buds than will probably come to perfection.

Cut out all dead and diseased wood, endeavoring to lead the young wood to fill up the vacancy.

Old trees may be much renovated by heading down, examining the roots, and cutting off those that have gone down more than two feet from the surface, and then renewing the soil from a good dry loamy pasture, with a little manure added to it.

This last operation will often remove the disease of mildew and honey dew. On pruning, generally, it may be remarked that, owing to difference in climate and method of growth, the practice in Europe would probably not exactly suit here; yet as the Peach is seldom pruned to any great extent in this country, much may yet be learned by experiment on this subject, to which we invite attention, as also to the

disease now infesting this tribe, which curls up the leaf; we have it now under examination, and shall communicate in our next all we can learn or observe respecting it.

J. E. T.

[To be continued.]

ON FLOWERS, THE MORE GENERAL INTRODUCTION OF WHICH
INTO THIS SECTION OF THE UNITED STATES WOULD BE
DESIRABLE.

IN forming a list of such plants, it is obvious that they may be divided into three classes: first, hardy annuals and perennials; second, green-house plants; third, ornamental shrubs and trees.

Many of them may be already here, and yet unknown to me, and others may be more general than I am aware of; yet even in these cases, as the names will be mostly taken from the showy species, such a list will be of use to those who are desirous of making a selection for their gardens; and it will be continued occasionally, as the plants offer.

It will of course be evident that there are some varieties of many of the tribes which I mention, more showy than those I select; with these I am either unacquainted, or they are very difficult to procure.

It is my intention, also, to prepare a similar list of fruits and vegetables. Any communications, therefore, on this subject, will be thankfully received and acknowledged.

HARDY.

Allium flavum — yellow *Allium* — bulbous. There is a large and a small variety of this color; the flowers are numerous, in a cluster at the top of the flower-stalk, of a bright color, and open gradually, that is, some fresh every day, so that it is desirable from its character of lasting. The *Allium Homeri* has much larger flowers, white, the seed vessel in the centre dark. Another variety is light purple. *Scilla bifolia*, *amæna*, *præcox*, and *autumnalis*.—The squill, bulbous. The first, *bifolia*, is a beautiful little blue flower, of elegant dimensions, blossoming in the open ground in England about the beginning of April. I do not know whether it is hardy here, never having seen it; but if not, the slightest protection of a room

would be sufficient. *Amæna* and *præcox* are very similar to each other, early, larger, of a deeper and more beautiful blue than *bifolia*. *Scilla autumnalis* is rather a small plant, and, as its name dictates, is an autumnal flower; but the form of the flower is very elegant, and the color a fine blue. There is also a white *Scilla* (*alba*), which is very pretty and quite hardy.

Authericum liliastrum, and *liliago*. — Herbaceous perennials; are both very desirable flowers, which come in spikes, of a very delicate transparent white; in shape resembling the white lily, but is of much lower growth. It is probable that this is already here, as I have seen it named in some New York catalogue.

Astrantia major and *minor*. — Hardy herbaceous; a pretty green and pink starlike flower, or rather cluster of flowers. This we have seen in a few gardens here; in England it is pretty common.

Astragalus alopecuroides — Foxtail flowering Vetch. — Hardy perennial; dense, woolly, oblong heads of rather a small, yellow, papilionaceous flower, like the clover; the whole growth of the plant and appearance of the heads, is very pleasing, two or three feet in height.

Aubrietia purpurca, and *deltioidea*. — Hardy herbaceous plants of the cruciferous tribe, growing low, near the ground; flowers purple, in great quantity; commences flowering in May, and continues nearly all the summer. They are very ornamental, particularly in rock work, or in crevices of the rock which abounds in the vicinity of Boston. They thrive best in dry situations, and are readily propagated by dividing at the root, by cuttings planted under a hand glass, or by seeds, which ripen plentifully.

Dracocephalum grandiflorum. — Perennial; uncertain whether hardy here, but is worth trying, if seed can be procured, as it is a beautiful large, blue, ringent flower. In England it requires a pure air for it to flourish.

Erodium hymenodes. — Hardy perennial; of the geranium tribe; an elegant growing plant, with a head of pinkish white flowers and brown eye; continues flowering great part of the summer, which is always a desirable qualification. It is a native of Mount Atlas, where it is found in fissures of the rock, and will therefore grow in any sandy, dryish soil; it may be propagated either by seed, or by dividing the root.

Geranium Wallichianum, *Ibericum*, *sanguineum*, *argenteum*, *pratense*, *double*, *Lancastriense*. — This is altogether a very shewy and desir-

able tribe of plants. The first mentioned was discovered in Nepal, by Dr Wallich, whose name it bears, and is among the most beautiful and hardy in Europe; no doubt it would stand the winters here well. I brought some seeds with me from England three years since, and gave them to Messrs Winship, where the plant will no doubt be found; it seeds freely, and grows readily, in almost any situation; flowers nearly all summer; blossoms large, very bright purple.

G. Ibericum. — Native of Iberia; flowers large; color blue; plant altogether very elegant.

G. sanguineum. — Stem erect; flowers large, beautiful crimson or blood color.

G. Lancastriense. — Stem prostrate, flowers large, beautiful flesh colored, with purple veins.

G. argenteum. — Foliage of a whitish silvery appearance; flowers large, pale red with darker stripes. This handsome plant is rather tender, and difficult of cultivation in England, but as it is a native of the Alps, it is not clear to me that this difficulty does not arise more from the prevailing humidity of the atmosphere, than from the inability of the plant to bear an extreme cold atmosphere.

G. pratense, double, is blue, and opens in a very elegant form. There are many other very showy species in this tribe, some of which will be noticed in future communications. The above are very easily obtained either here or in Europe.

Hepatica triloba. — Double red and blue; hardy perennial. This charming early flower is found in its single state both red, blue and white, in great abundance at Mount Auburn, where it embellishes the ground with its clumps of numerous flowers. About the latter end of April and beginning of May they appear before the leaves, which shew themselves only when the flower is gone, and are divided into three lobes (*triloba*) of a brownish green color, by which the plant may be known in the summer.

The double flowers are extremely handsome, colors very bright; they are quite hardy here, and will thrive well if not planted in too damp a soil. I have seen the red this spring in perfection at Mr Walker's garden, Roxbury, where it had endured the winter in the open air.

If required to grow in thick clumps, they should not be often moved, and then with great care, pressing the earth close to their roots; a strong, rich, loamy soil is best for them; seed for varieties

and double flowers should be sown in July or August, or as soon as the seed is ripe — some say the transplanting should take place in August; I am of a different opinion and think it should take place as soon as the flowering is over; in August the blossoms for the ensuing spring are forming at the base of the foliage, and to check this operation would be destroying the flowers, whereas moving in May only endangers the ripening of the seed which is not wanted.

Double hepaticas in pots are sold in large quantities by the gardeners in England and from the absence of foliage the pot appears entirely filled with flowers.

The double white are considered rare.

Hypericum calycinum and androsæmum, St John's wort. Of this plant there are several varieties growing wild here which are troublesome weeds — but *H. calycinum* bears a very large yellow flower, and its numerous stamens form a beautiful appearance; it creeps over the ground and prefers the shade of trees, which makes it a valuable ornament for shrubberies; the foliage also is broad, thick and shining. I have gathered it wild in Ireland, of which it is a native, but it has not yet been found in England. I imagine it to be sufficiently hardy to bear this climate, but do not know that it has been tried.

H. androsæmum, called *Androsæmum officinale*, is a shrub about three or four feet high, flowers yellow, showy.

The juice expressed from the foliage is claret colored. The leaves were formerly applied to fresh wounds, hence the French name, *toute saine*, (all heal) from which it obtained its common English application *Tustan*. Flowers in July.

Lathyrus grandiflorus, great flowered everlasting pea, perennial. I have seen this named in Prince's catalogue, but have not observed the flower in this part of the country; it deserves a place in almost every garden; but although perfectly hardy in England, I am not certain about it here, as it is a native of the sides of Mount Etna. The flowers are very large, rose colored, and appear two or three together, the foliage and stems light and elegant. It is not dear in Europe and is therefore worthy of trial, as if hardy it will be a great ornament to the garden.

I will now add a few green house plants.

Amaryllis, psittacina, ulica bulbs. I am very glad to see this magnificent tribe on the point of general introduction into this country.

Messrs Winship have imported several varieties, which have blossomed in perfection, amongst them are *A. Johnsoni* and *regina*. *Psittacina* is however, the greatest favorite with me; it is white with dark red veins, the form is fuller and larger than many others, particularly when grown in perfection.

The *Amaryllis* derives considerable interest from the facility with which new and splendid hybrids are raised from seed, many of which are more hardy, surpass the originals in beauty, and flower more freely. The seeds should be sown as soon as ripe; when a few inches high they must be potted off into small pots; as soon as these are full of roots, remove them into larger pots, changing three or four times during the summer; many seedlings will thus flower in twelve months, particularly those from *A. reticulata* and *striatifolia*.

The best soil is about one third sand, one third chopped turfy loam and one third peat or leaf mould; I prefer the latter which is not so apt to rot the bulb as peat. Most bulbs which are wished to be forced into bloom should be planted shallow and not in too large pots, these should always be well drained with potsherds.

The celebrated bulb cultivator, Griffin, used to put a quantity of dry undecayed leaves with rich turfy peat over the drain, and place the bulb on a piece of light sandy loam, filling up with the compost. As soon as the blossoms have completely faded and the leaves begin to turn yellow the bulbs are in their dormant state; cease watering and place them in the house, where they are exposed to the hottest sun, this ripens the bulb. Sweet says many are better if taken out of the pots, and repotted when the flower begins to appear, such are *A. reginæ*, *crocata*, *fulgida*, *Johnsoni*, *psittacina*; others are spoiled by this, as *A. aulica*, *calyptrata*, *solandræflora*. In September and October many varieties will begin to push their leaves through the neck of the bulb; as soon as this is observed, give two or three inches of fresh compost, water very freely; at this period if they could be placed in a hotbed or stovehouse for a month or six weeks, the spikes of flowers would be very luxuriant; this was my constant practice. When opening remove them to a cool green-house, the flowers will last much longer.

In many species the leaves are covered with a beautiful glaucous bloom, which in my opinion adds much to the beauty of the plant. I was therefore very careful not to water over them and wash it off.

J. E. T.

[To be continued.]

NOTICE OF THE GERMAN BOTANICAL TRAVELLING SOCIETY.

[Partly extracted and translated from the *Allgemeine Botanische Zeitung*, of 1834. By J. E. T.]

THE object of this society is to undertake journeys for the collection of dried specimens of rare plants, their seeds, bulbs or fruits, which are distributed to subscribers in proportion to the amount paid by each member: — it will perhaps be better understood by giving a succinct account of the journey last undertaken, with the names of a few of the plants collected, and of that now proposed.

The plants of the last distribution were collected in the vicinity of Schuscha in Caucasian Georgia, near the confines of Persia, by Mr Hohenacker from Wurtemberg, and were in parcels of two different values — one containing 138 species for those who subscribed fifteen florins, and the other containing 175 species for those who subscribed twenty florins. As these plants came from a distant, but very interesting country, requiring the expense of carriage through Moscow, St Petersburg and Lubeck — as they are complete and in an excellent state of preservation, many of them accompanied with the fruit, they cannot be considered dear.

The rarity and value of the specimens will be exemplified by the following list of a part of the collection.

<i>Iris Iberica.</i>	<i>Robinia grandiflora.</i>
<i>Ægyplos squarrosa.</i>	<i>Sophora alopecuroides.</i>
<i>Minuartia montana.</i>	<i>Vicia trunculata.</i>
<i>Scabiosa micrantha.</i>	<i>Lathyrus roseus.</i>
<i>Pterocephalus plumosus.</i>	rotundifolius.
<i>Phyteuma campanuloides.</i>	<i>Trifolium trichocephalum.</i>
<i>Astrantia caucasica.</i>	<i>Hedysarum pseud-alhagi.</i>
<i>Allium albidum.</i>	<i>Astragalus aduncus.</i>
<i>Ornithogalum chloranthum.</i>	<i>Cirsium corsmelii, serrulatum,</i>
<i>Pyrus eleagnæfolia.</i>	and obvallatum.
<i>Capparis herbacea.</i>	<i>Artemisia fragrans and Marschal-</i>
<i>Delphinium divaricatum.</i>	liana.
<i>Scrophularia variegata.</i>	<i>Centaurea Adami, coronopifolia</i>
<i>Pedicularis achillæfolia.</i>	and macrocephala.
<i>Capparis herbacea.</i>	<i>Celtis Tournefortii.</i>
<i>Crambe juncea.</i>	All properly ticketed.

The contemplated journey is to be made under the direction of the

society, by Mr W. Schimper, known by his late expedition to the vicinity of Algiers, and Dr Wiest, a Wurtemberg physician and botanist. These gentlemen are to proceed to Egypt and from thence on approach of autumn travel towards Arabia, if possible examining the neighborhood of the Red Sea and the district of Mount Sinai. They have strong letters of recommendation to the convent of St Catharine, which will doubtless procure them a favorable reception, and from whence they can safely forward their collections to Europe through Suez and Alexandria. The celebrated Decandolle had long expressed a wish that the society should fix on Arabia for an operation — but the late arrival of Mr Gay in Paris with an account of the botanical riches of this almost unexplored country decided the plan.

Two collections of dried plants were purchased in Paris in 1833, gathered by an old gardener of the Viceroy of Egypt, in the deserts around Sinai during the month of June, 1832. They contained 230 species, of which the greater part were *quite new*, from which it is judged that if this is the produce of a month which in that geographical situation is considered an advanced month of the vegetable year, the travellers who intend remaining six months on the ground must reap a fine harvest. The plan of this journey has been arranged so that the whole expense will not fall on those subscribing for shares. The grand Duke of Baden has presented the society with 1000 florins on account of Mr Schimper, and the king of Wurtemberg has given 1000 florins on account of Dr Wiest, and this latter presents an equal sum from his own resources towards the execution of the project. — However, as all these means are insufficient for the expense of the undertaking, the members of the society, as well as all friends of science who feel an interest are invited to subscribe for shares. From the support already offered by the government and the strong letters of recommendations by which the influence of the English and French Consuls in those countries will be secured, the society trusts sufficient confidence will be inspired to enable it to raise as many shares at thirty florins each as will pay the charges. However, should this not be the case the agreement with the travellers is so framed that the subscribers will have scarcely any risk — therefore those who wish to share in the fruits of this undertaking will have to subscribe thirty florins. Higher subscriptions are received, which would ensure a larger portion of the collections made, as these gentlemen do not intend to confine their researches to plants alone, but also to collect

bulbs, seeds, insects, fishes, shells, molusca, birds, skins and skeletons of mammalia, &c.—in fact no pains will be spared to render this journey worthy the support of the physician, the geographer and the lover of natural history.

Subscriptions will be received by Professor Hochstetter, and Dr Steudel, Esslingen, Germany.

ON THE COLOR OF PLANTS AND FLOWERS.

THE curious and striking varieties of color in flowers, their metamorphoses, the delicate pencilling of the veins in many, and the beautiful hues of striped petals, which have from time immemorial attracted the attention even of the listless observer of nature, have of course not been left unexamined by the philosopher of every age; and although there is sufficient reason to believe that the usual methods of rigorous examination into cause and effect have been applied with all the ingenuity that a love of nature, or an ambition of distinction could suggest, these labors have not yet led to any very satisfactory theory on the subject of the cause of color, and its variation in flowers.

Those who are not conversant with raising varieties of *Tulips* from seed should be informed that what is technically called *breaking* of a seedling tulip, is the sudden change which takes place one year in the color of the flower; for instance from a dull purple it will change to a fine clear white with brilliant red stripes, or from another dull color to a bright yellow with dark stripes, and this bulb with its progeny of bulbs, if properly managed will always remain of the same colors. This process often takes six to twelve years, and cannot apparently be foreseen or accelerated, some never break or change at all. The person who raised or broke the famous tulip Polyphemus, told the writer that it was nine years before this effect was produced.

There also many other curious proceedings of nature on this subject, which must have been generally remarked; the flower of *Cobæa scandens* is green the first day and violet the next—the *Hibiscus mutabilis* is white in the morning, pink at noon, and red at night.

M. Raspail, an eminent French botanist, has written a long and elaborate memoir with colored plates, in which he endeavors to account for the different appearances of plants, and particularly their flowers, from the peculiar modifications of the circulating juices, which

in some states he calls *globuline* — this theory has been denounced by a first rate English botanist, as fanciful, though without any reason assigned for his opinion.

It is some years since I perused it, there appeared to me then much plausibility in it, at all events it exhibited considerable industry, research and ingenuity of reasoning.

M. Decandolle whose opinion on all subjects relating to the laws of vegetable structure is entitled to the greatest attention, has divided the colors of flowers into two series, the Xanthic, and the Cyanic as follows :

Xanthic or oxydized series	{	red. orange red. orange. orange yellow. yellow. yellow green.
Color of leaves,		GREEN.
Cyanic or disoxydized series	{	greenish blue. blue. violet blue. violet. violet red. red.

founded on a memoir of Messrs Schubler and Funk, published at Tubingen, in Germany, in 1825, where it is stated that all flowers may be divided into two classes, one having the *yellow* color for its type ; these are incapable of passing into blue, but into every shade of red and white ; the other having the *blue* color for its type which can also pass into every shade of red and white, but never into yellow ; thus for instance, the *Potentilla*, a little yellow flower like the buttercup, which abounds every where, trailing along the ground, has been found of different shades of red, but never blue ; the *China aster* which has every tinge of red, blue, is never yellow ; the *dahlia* is never blue, but often yellow and red.

“ It will have been remarked that white is omitted from these two series. It may be doubted, indeed, whether it really exists in a state of purity in flowers, and it seems to be rather some other color reduced to an exceedingly light tint. Redouté, the French flower-painter, is said to have availed himself with great advantage of this fact. He always placed the flower he wished to represent before a sheet of paper like that on which he had made his drawing, and he

uniformly found that the flower would differ from the paper in being more yellow, or more pink, or more blue, or in some other way. White *Campanulas* become blue when they are dried; infusions of white flowers in alcohol have always a perceptible tinge. Flowers which are white verging upon yellow yield infusions which alkalies bring to a more positive brown; infusions of those which are white, tending to blue or red, become light red by the action of acids, and greenish by the action of alkalies."

"Infusions of yellow flowers in alcohol are of a clear yellow, without the flowers losing much color. Acids produce no other effect in these infusions than to weaken their color slightly. Alkalies make them more brilliant or browner.

"Blue flowers produce, in alcohol, infusions either of a clear blue, as those of flax, or very dark, as in the case of the *Aconite* and the *Larkspur*. By the addition of acids they become red, and of alkalies green. Those which are colored red by acids will not recover their blueness by the addition of alkalies, as sometimes happens to infusions of red flowers. Macaire having seen a red infusion of violets regain by degrees the natural blue of those flowers, by the addition of a vegetable alkali, such as quinine or strychnine, suspects that the color of the violet depends upon the combination of their chromule with some alkali. Schubler and Funk assure us that the infusion of the *Blue Day Lily* (*Funkia cœrulea*), treated with an acid, will present in the same glass all the tints of the colored spectrum. Blues are among the most changeable colors in vegetation, passing freely to white, and to different tints of violet and red.

"From what has now been stated, it appears to result that modifications of chromule are the cause of the diversity of colors; and that these modifications depend principally upon the degree of oxygenation. In leaves fully developed the chromule is green; it gains a tendency to yellow or red when it is more oxydized, as one perceives by the changes of the color of leaves in autumn by the effect of acids; and it appears to verge to blue when it is less oxydized, or, which comes to the same thing, more carbonated: thus we know that the flower of the *Hydrangea* becomes blue in a soil sufficiently impregnated with carbonate of iron."

"Although we are justified by the mass of evidence in asserting that the green color of plants is owing to the fixation of carbon in their tissue, in consequence of the power that light possesses of decomposing their carbonic acid, yet there are some exceptions that

deserve attention. Humboldt found *Poa annua* and *compressa*, *Plantago lanceolata*, *Trifolium arvense*, Wallflower, and the *Rhizomorpha verticillata*, green in the subterranean galleries of the mines of Freyberg, although born in total darkness, but in atmosphere highly charged either with hydrogen or nitrogen. Ferns and Mosses, again, will be green when other plants are blanched; and Humboldt found near the Canaries a *Fucus* which was bright grass-green, although it had grown at the depth of from twentyfive to thirtytwo fathoms (one hundred and ninety feet). Now, as light, according to the experiments of Bouguer, after traversing one hundred and eighty feet is weakened in the proportion of 1 to 1477.8, this *Fucus* must have been illuminated when growing by a power two hundred and three times less than that of a candle at a foot distance. Are we to suppose that this feeble degree of illumination was sufficient to decompose the carbonic acid of such a plant, or was not the decomposition rather owing to the operation of some unknown cause?—*Library of Useful Knowledge, for April.*

I have seen ferns growing as green as grass in a tomb, and down the sides of a deep well where the light must have been very trifling; these exceptions I think make the cause assigned for colors very doubtful; and as to light being the cause of color, although it is true that one cannot see colors in the dark, yet in the mines where precious stones are found, the emerald or the ruby which has been imbedded in the dark bosom of the rock for ages, is and always has been the same color from the time of its first formation.

It appears to me that many of the apparent anomalous appearances in the colors of plants may be explained, on the supposition that the cause of them are metallic oxides taken up by the vessels of the roots from the earth in an exceedingly minute state of division from solution, and exposed by the different structure of the vessels of the petals or leaves, or of the pores on the surface (epidermis) to different degrees of oxidation, or perhaps to different modifications of light. Or the increasing acidity of the juices may also increase the oxidation; the nature of this work does not admit of a very extensive discussion of this subject in its pages, but it may be well to exhibit the preliminary position of the argument; that plants do contain metallic oxides.

Dr Sprengel, in a German publication called *Der Land und Hauswirth*, or the Agricultural and Domestic Economist, states that in almost all plants analysis discovers more or less iron, and as the

atmosphere does not contain any sensible quantity it must be admitted that it is derived from the soil.

In Sir Humphry Davy's Agricultural Chemistry, it is stated that the only metallic oxides found in plants are those of iron and manganese, but there is little doubt that copper exists in the rose, as may be verified by leaving a clean linen rag in rose water or in the water in which rose leaves have been steeped; after some days it will turn green, and copper may be detected, even when the rose water has been distilled in glass or new tin vessels. I remember to have seen a scientific account in some French publication, of gold being extracted from the sage plant, although in very small quantities. Iron and manganese would however be sufficient to produce almost every variety of color known.

Immediately after the flower withers, a change in the juices of most plants takes place, by which change the fruit or seed is matured; this is very perceptible in the eatable fruits and proceeds until acidity becomes obvious to the taste; after this saccharine juice is formed — now if iron in a low state of oxidation be the coloring substance of a flower, it is clear that as soon as the juice of the plant becomes more acid a farther oxidation takes place, this would cause a change in color.

I would instance the lilac. Iron in a low state of oxidation combined with manganese and carbonic acid form component parts of a mineral called Pearl spar, which is of a brilliant white — it may therefore exist in the same state in the white lilac; and the manganese is often found, particularly in the Tisee marble, to be the cause of lilac color — as the juices ripen and grow more acid, the iron is farther oxidized, the flowers fade, turn of a rusty brown and finally the seed vessel ripens of a dark brown.

That Iron is able to produce almost every variety of colors we may learn from the facts that the native minerals,

Phosphate of iron is of all shades of blue.

Sulphate and arseniate of iron, are green, brown, yellowish red, brownish green.

Humboldtine or oxalate of iron is bright yellow.

Pyrosmalite or muriate of iron is a bright pistachio green.

Iron mica or Goethite is a ruby red.

Manganese is also found of most colors, from the greenish blue of the *Horn Mangan* to the rose red of the Tisee marble.

The amethyst is supposed to be colored by iron and manganese, the emerald by oxide of Chrome; the topaz, the sapphire and the ruby by

iron, there is therefore a priori not the smallest impossibility in the above supposition; and as we know by chemical analysis* that many plants contain traces of these metals, the probability of its truth increases; the subject however is a *terra incognita*, an unknown land, in which there is plenty of room for the ardor of discovery to be employed.

It is well known to the florist that over manured soil deepens or spoils as he calls it the colors of his tulips and other favorites, and that from this deterioration it is difficult to recover them.

Strong manure contains a large proportion of alkali, and this always deepens and rather deadens many colors, particularly of the red, and purple tinge, while acids on the contrary lightens and enlivens them; this consideration may be experimentally applied to the subject; and in general where the known facts in one science can be brought to bear upon the unknown facts of another they are like an *Algebra* of experiments, oftener elucidating and clearing up than misleading.

J. E. T.

EXTRACTS FROM FOREIGN PUBLICATIONS.

LOUDON'S GARDENER'S MAGAZINE, for May, 1835.

Observations on Gardening in Belgium, &c., by John Madison.

“*Camellias* are a tribe of plants which are grown almost to infinity in Ghent and its neighborhood. They are the fashion: and this is here, quite a sufficient apology for the immense numbers that are to be met with. It is very amusing to hear the gardeners and amateurs boasting to each other of their two or three hundred varieties of this plant. The Belgic gardeners are certainly very clever in the propagation of this plant, seldom failing in grafting, by approach (*à côté*), every bud; so that a young camellia, with ten leaves and buds, is almost as certain of being made into as many plants. But, at the same time, in most years, a stranger would be struck with the want of flowers and flower buds on very large camellias, among the many thousand to be met with in their green-houses. It is in this they fail; and I attribute it principally to the nature of the

* Sir H. Davy introduced the roots of a Primrose into a weak solution of oxide of iron in vinegar, and on careful and accurate analysis found the vessels of the plant had taken up a sensible quantity of iron.

earth their large plants are grown in, but also partly to their removal into the open air before their flower buds are formed. I have visited in the season many collections, containing, very probably, a million plants; and, with the exception of M. Riender's, of Brussels, I cannot recollect seeing one well cultivated collection, in point of flower-bearing plants.

Azaleas. — The Belgian is extremely fickle in his taste for plants. The cultivation of the beautiful tribe of azaleas is, in a manner, passed by; and yet no country in the world is more favorable for that kind of culture than this. A few years back, they were the *mode*; and thousands were in flower at one time, in gardens where, at present, you would find but few, if any at all. I am glad to find, however, that immense quantities are sent over every year to England. This is a family of plants which ought always to remain in fashion; especially that variety named *Azalea Morterii*, a late flowering azalea, which comes into flower about a month after the commoner kinds. The Ghent gardeners have lately sadly neglected their azaleas: they have neither propagated the old sorts, nor made the most of those they have raised from seed.

Grapes ripen well and early: in the open air, on the walls, in September and October; and, in their forcing houses, as early as May. The soil, being sandy, contributes a great deal to their early ripening. The vines have, this year, been very much loaded on the open walls; and the fruit (the Sweetwater or black Hamburgh) has been very well tasted.

Peaches are not nearly so well flavored about Ghent as in England. They appear to me as too mealy; and good nectarines are very scarce. The pruning of the peach and nectarine trees is very singular, when compared with what is practised in England. Scarcely a tree is ever pruned in this neighborhood before the month of April; many even prefer waiting till the fruit is just formed, and the flowers are falling off, before they let a knife approach the tree; at which time or a little before, all the trees undergo a complete whitewashing with lime water, to kill the insects. I have observed that those trees which are so washed are sure to produce the finest fruit, and to be more free from insects than those which I have, for experiment left unwashed. This washing, which is also given annually to the apple and pear tree, is, I believe, principally confined to those places where the soil is sandy in excess; as, in the country about Liege, they dare not make use of this process,

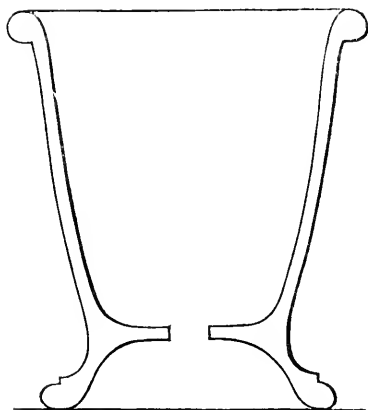
for fear of killing the tree. So convinced now am I of the utility of an annual whitewashing to my trees, that I practise it upon a collection of Lancashire gooseberries, immediately after I have pruned them in February; and have found the best effects resulting from it, never since the time I began to practise it, having found an insect on the trees.

Cherry trees are propagated by grafting *en fente* in the month of April or end of March, and throw out but little gum. I am inclined to think that the practice of plastering over the wounds with the grafting composition here made use of prevents gumming from taking place. This composition consists of pitch, resin, and bees' wax, in nearly equal quantities, boiled over a fire, and, when liquid applied to cover the place where the graft is made. This keeps out the rain, stops the bleeding of the tree, and gives way very gently as the shoot increases; it is by far the neatest grafting composition that I know. In very hot weather, a little more resin may be added, to prevent the composition from melting."

Notices on the state of Gardening in part of France by Mr George Charlwood, Seedsman, Convent Garden, London.

This gentleman is well known in many parts of this country and we may add that no one is better able to give just and comparative ideas on this subject.

"Another department of culture is that of flowers exclusively in pots for sale, as mentioned, in the flower market. Then, again, there are some few more extensive growers of roses, &c., who have also a general collection of the rarer and better sorts of plants, such as M. Noisette, M. Cels, M. Soulange-Bodin, M. Laffay, and some few others, who also cultivate roses, dahlias, &c. At Versailles, which is ten or twelve miles from Paris, camellias are extensively cultivated; but in no instance could I observe anything approaching to the extensive or business-like arrangements which are apparent in the large nurseries in England; nor the slightest approach to that extent of capital embarked in the various departments of the trade, with the air of bustle and deep occupation so evident with us. Any attempt at such a comparison in regard to the value, quantity, and variety of business, between the respective countries, would be futile and even absurd."



*Notice of an improved Garden Pot by Thomas Carey Palmer, Esq.,
F. H. S. &c.*

THIS cut represents a kind of garden pot made of common clay, at the cost of 4s. 6d. per cwt., many of which I have been using for the last twelve month. I find they do not blow down in windy weather ; that they do not allow worms to enter when standing on the ground ; and that those worms which happen to be in the mould before it is put in escape at the bottom hole, without, as it were, sealing it up, and making it water logged, and, besides, without the power of entering again through the same hole ; so that this pot is not only a preservative against worms, but a means of getting rid of them where they exist in the soil, or by accident get into it. These pots are also useful for plants which require to be protected from the approach of ants and many other insects, as they can stand in a pan of water without wetting the roots ; and, although not a cultivator of heaths myself, I am inclined to think they might be beneficially used in hot weather for those plants to keep the roots cool over water without rotting them. These pots were made at my suggestion, by Mr Marshall, near Counter Hill, New Cross, Lewisham Road. The form is as you know not new ; but I believe it has never been used for common pots.

Bromley, Kent, March 22, 1835.

“ *Camellia franeofurtensis*. — I have to relate to you great news. I have gained from the seed of the camellia argentea the most splendid variety which ever has been seen in this country. You

think it, perhaps, not possible; neither have I ever expected such a triumph. It flowered first last year, on a very weak plant; and although so very beautiful that paintings and lithographic plates were taken from it, yet the beauty of the present flower surpasses the most extravagant wishes. It is quite as large as the *C. reticulata*; the form and colors are unrivalled [we understand that it is white with dark spots]; and there is no doubt of its maintaining the first place among camellias for at least twenty years. It is named the *Camellia francofurtensis*, and is the pride of our town—the conqueror's crown of the genus. Had the flowering plant stood at some place about London, I am fully convinced that it would have excited great speculations; but the *Camellia francofurtensis* will soon reach England, and will be required for every collection. — *J. Rinz, Jun., Nurseryman. Frankfort on the Main, Germany, March 19, 1835.*

Cytisus bracteolatus is now finely in bloom with us. It is a most desirable conservatory plant, and is loaded with racemes of golden yellow flowers, which are powerfully fragrant. — *George Penny. Milford Nursery, near Godalming, England, March 17, 1835.*

HARRISON'S FLORTICULTURAL CABINET, for May, 1835, contains figures of the new *Violas* or *Pansies* as they are called. One, the *Iver beauty Pansy*, is very remarkable and we judge must be handsome; it has a clear narrow sky blue border round the whole of the petals; the remainder of which is a bright pale yellow. The other is the *Royal Crimson Pansy*; the inner half of the three lower petals is yellow, the remainder and the whole of the two upper petals bright crimson.

PAXTON'S HORTICULTURAL REGISTER has passed into the hands of Mr James Main, who will no doubt prove an able conductor. In the number for May, Mr Mearns on Coiling Vines in Pots, says, "Your readers will no doubt be desirous to know how the coiling system of propagating the grape vine goes on. At every attempt it is still more prosperous. I have one of this season with a most promising crop of nineteen bunches of the white Frontignan. I have a great many in pots coiled last March, which will produce me from seven hundred to eight hundred fine bunches, in all, about ninety vines in pots and boxes, which will produce about one thousand bunches of grapes this year; and the bunches are as fine as you could desire under any method of cultivation, and will be matured in the greatest perfection. Many are at this time nearly ripe.

“ You have not forgotten my notice to you last season, of a rootless shoot of the same season producing thirtyfive bunches; the object was attained by stopping, so as to induce a second show of fruit, and they were all perfectly ripened. The vine is still in the box, and broke as luxuriantly, and showed as fine as I ever saw upon any vine; it developed seventyeight bunches, and I have retained thirtysix, which, I have no doubt, will be as fine of the kind (Purple Constantia) as can be. It is astonishing how well all the varieties of the Muscat of Alexandria bears, set and swell, by the pot culture. The sceptical Mr Grey, I think, would be struck dumb if he were to see them, and I should be most happy to see him if he would pay me a visit; I fancy he would become a convert to the pot culture of grapes.

“ I have found that the best method to propagate the vine is from pieces of the old wood instead of the young. I cut off lengths of three or four years' old wood from six to ten or more inches, and after denuding them of all warty excrescences, besides that at the apex, I bend them horizontally round the inside of the pot, using as small a size at first as I can safely bend them into, so as to give me the chance of frequent shifting, and place them in bottom heat. When a shoot arises, it comes up like a strong asparagus bud, and soon has abundance of fine roots, with a great reservoir of food to support it. When it has grown to the height of eight or ten inches I pinch off the top, and then all the laterals, till I induce a principal eye to burst, which lead *upwards*, divesting it of all laterals and tendrils, till it is five or six feet long, before I again top it, if it be of the desired strength; but if not I top at two or three feet according to its strength, till I have got the strength required, which the plant soon gains, in consequence of the number of active and vigorous roots. When the pot is full of roots, re-pot it, and afterwards it will do well without placing again in bottom heat.”

SENEX on preventing the attacks of insects, mildew, &c. observes, “ The best, cheapest, and easiest produced liquid for defending and cleansing fruit-trees from insects is common soap suds from the laundry. I have always used this waste water for all kinds of trees, whether on walls or standards, employing the force of the garden engine. The bitter of the alkaline principle, and the clogging effect of the greasy matter on the movements of minute insects, if not fatal is certainly offensive to all kinds inhabiting walls or trees. Besides, the cleansing effect of such a liquid thrown on with force gets rid not only of insects but many other impurities, and the trees always appear

to be refreshed and invigorated by it. And it may easily be conceived, that stems and branches coated with the white curdlings of the soap, and the opening scales of the buds repeatedly filled by the same, must make the bark of the one and the interior of the other very disagreeable retreats, whether for board or lodging. The only time in the season when such an application is unsuitable will be during six weeks before the fruit begins to ripen, as certainly no taint of the soap should remain on the fruit.

“This application is available, useful, and even necessary on another account. It is a mortal enemy to the parasite fungus called mildew; and not only prevents the attack if timely applied, but kills the fungus, and recovers the wounded bark in a very short time. Some gardeners add a little of the flour of brimstone in the remedy for the cure of mildew — an useful addition, as it is equally destructive of this pernicious fungus.

“Soap-suds is equally efficacious in banishing the little acarus commonly called the red spider, so detrimental to fruit trees and many other plants grown in a high temperature. In forcing-frames and houses they are a great pest, and are also met with on wall trees in summer. They thrive and increase wonderfully in a dry atmosphere, and are greatly annoyed by moisture of any kind; and in some cases, when water or steam would be hurtful to certain plants, the acarus can only be banished by fumes of sulphur evolved from a strongly heated flue or chafing-dish; but wherever water can be copiously and forcibly applied this little insect cannot thrive to be seriously hurtful.”

An auctioneer in London advertises a number of *Red* flowering laburnums for sale being the first that had been offered for sale in England, they were from France.

SWEET'S BRITISH FLOWER GARDEN contains colored figures and descriptions of

Rhododendron venustum, one of the hybrids from *R. arboreum* and *R. Caucasicum*; the clusters of flowers are very dense, of a rich pink color with dark red spots inside.

Narcissus maximus, resembling in some measure the common daffodil.

Abutilon pulchellum, a fragrant small white flowering shrub, from New South Wales.

Mutisia latifolia, an elegant plant of the Compositæ tribe from Valparaiso, Chili, named after Mutis, the chief of the Spanish botanical expedition to New Grenada.

EDWARDS' BOTANICAL REGISTER, for May, contains colored figures and descriptions of

Lepanthes tridentata,
Dendrobium Pierardi, } Orchideous plants.
Bletia reflexa, }

Begonia petalodes, a small flowered Begonia, the two sepals (calyx leaves) rose colored, the two petals (flower leaves) white.

The editor says "one of the prettiest things in the gardens of Schonbrunn, the Imperial palace (near Vienna) is a Begonia house filled with this genus and Ferns growing on decayed wood and old tan.

Physianthus albens, an Asclepiadeous climber from Mexico, not of much beauty.

Caprifolium hispidulum, bristly honeysuckle, a small flower in pink clusters, described as a very rare hardy shrub of low growth, from the North West Coast, discovered by the unfortunate Mr Douglas.

Orobus atropurpureus, dark purple orobus. A hardy perennial from Algiers.

CURTIS'S BOTANICAL MAGAZINE, BY J. LINDLEY, contains colored figures and descriptions of

Zygopetalon Mackaii, } Two orchideous plants, the former hand-
Neottia calcarata, } some and tolerably plentiful.

Goldfussia anisophyllæ, a beautiful plant found by De Sylva at Sylhet, introduced by Dr Wallich; tender, somewhat resembling Salpiglossis.

Chilodia scutellarioides from new Holland, hardy green-house, something like the little purple gerardia, which is common in every wet spot near Boston.

Saxifraga ligulata, fringe leaved saxifrage, the most beautiful of the tribe; introduced from Nepal by Dr Wallich; large white flowers in clusters, with pink anthers; it flowers in January and February, is tolerably hardy and would in consequence be a delightful addition to the green-house.

Epacris impressa, moderate hardy green-house plant from New Holland, very graceful and remarkable for the large size (compared with the rest of the genus) and the rich deep rose color of its pendant flowers.

Acacia prensans, an elegant climbing shrub, attaching itself tenaciously to everything within its reach by means of copious small hooked prickles abounding on its stem. Its native country not

known, there being only a single tree existing in the garden at Funchal.

Mr Douglas the Botanist. — The intelligence of the death of this enterprising traveller and botanist will be read with feelings of the deepest regret, by every one acquainted with the eminent services he has rendered to botany, and other branches of natural history, in the course of the last twelve years. His name, in fact, is associated with all the rare and beautiful plants lately introduced from North-west America, which, by means of the Horticultural Society of London, have been extensively distributed not only in Britian, but over Europe. To him we are indebted for the elegant clarkia, the different species of pentstemons, lupines, œnotheras, ribeses, and a host of other ornamental plants which now adorn our gardens, and which have formed the great attraction of the several botanical publications wherein they have been figured and described.

Mr Douglas was born at Scone, near Perth, and served his apprenticeship as a gardener in the gardens of the Earl of Mansfield. About the year 1817 he removed to Valleyfield, the seat of Sir Robert Preston, Bart., then celebrated for a choice collection of exotics, and shortly afterwards went to the Botanic Garden of Glasgow. Here his fondness for plants attracted the notice of Dr Hooker, the professor of botany, whom he accompanied in his excursions through the Western Highlands, and assisted in collecting materials for the *Flora Scotica* with which Dr Hooker was then engaged. This gentleman recommended him to the late secretary of the Horticultural Society, Joseph Sabine, Esq., as a botanical collector; and in 1823 he was despatched to the United States, where he procured many fine plants, and greatly increased the Society's collection of fruit trees. He returned in the autumn of the same year; and in 1824 an opportunity having offered, through the Hudson's Bay Company, of sending him to explore the botanical riches of the country adjoining the Columbia river, and southwards towards California, he sailed in July for the purpose of prosecuting this mission. In one of his letters, now before us, he thus speaks on leaving England — "I had a fine passage down the channel, and cleared the Land's End on the 1st of August. The day was warm, with a clear sky: the evening cool and pleasant. I stood on deck looking on the rocky shores of Cornwall, burnished with the splendor of a setting sun — a noble scene. By degrees the goddess of night threw her veil over it, and my delightful view of happy England closed — probably closed forever!"

While the vessel touched at Rio de Janeiro he collected many rare orchideous plants and bulbs. Among the latter was a new species of *Gesneria*, which Mr Sabine named in honor of its discoverer, *G. Douglasii*. He was enraptured with the rich vegetation of a tropical country. He stopped at Rio longer than he anticipated, and left it with regret. In the course of his voyage round Cape Horn he shot many curious birds peculiar to the southern hemisphere, and prepared them for sending home. On Christmas day he reached the celebrated island of Juan Fernandes, which he describes as "an enchanting spot, very fertile, and delightfully wooded. I sowed a large collection of garden seeds, and expressed a wish they might prosper, and add to the comfort of a second edition of Robinson Crusoe, should one appear." He arrived at Fort Vancouver on the Columbia, on the 7th of April, 1825. Here an extensive field presented itself to him; and the excellent manner in which he performed his duty to the Horticultural Society cannot be better exemplified than by referring to the vast collection of seeds which from time to time he transmitted home, along with dried specimens, beautifully preserved, and now forming part of the herbarium in the garden of the Society at Chiswick. Of the genus *Pinus* he discovered several species, some of which attain to an enormous size. The *Pinus Lambertiana*, which he named in compliment to Aylmer Bourke Lambert, Esq., Vice President of the Linnæan Society, is, perhaps the largest of the whole. One of these, which had been blown down measured two hundred and fifteen feet in length, and fiftyseven feet and nine inches in circumference, at three feet from the ground. The cones of it which Mr Douglas sent home, and which we have seen, were sixteen inches long, and eleven inches in circumference. The kernel of the seed is sweet and pleasant to the taste, and is eaten by the Indians, either roasted or pounded into coarse cakes for winter store. The resin which exudes from the trees when they are partly burned, loses its usual flavor, and acquires a sweet taste; in which state it is used by the natives as sugar. Another species, named by Mr Sabine, *Pinus Douglasii*, attains nearly the size of the above.

In the spring of 1827 Mr Douglas traversed the country from Fort Vancouver, across the Rocky Mountains to Hudson's Bay where he met Captain (now Sir) John Franklin, Dr Richardson and Captain Back, returning from their second overland Arctic expedition. With these gentlemen he came to England in the autumn,

bringing with him a variety of seeds, as well as specimens of plants and other objects of natural history. Through the kindness of his friend and patron Mr Sabine, he was introduced to the notice of many of the leading literary and scientific characters in London; and shortly afterwards he was honored by being elected, free of expense, a Fellow of the Linnæan, Geological and Zoological Societies; to each of which he contributed several papers, since published in their *transactions*, evincing much research and acuteness as a naturalist. A handsome offer was made to him by Mr Murray of Albermarle street for an account of his travels, which he commenced preparing for the press, but which, we grieve to say, he never completed. Some entertaining extracts from his letters to Dr Hooker were published in *Brewster's Edinburgh Journal* for January, 1827; and a genus of plants belonging to the natural order Primulaceæ was dedicated to him by Professor Lindley, and defined in *Brande's Journal* for January, 1828; but it will scarcely be credited in this enlightened age, when there are so many channels open for communicating information, that the interesting journal of his travels, which we have seen and read, has been allowed to slumber unregarded in the archives of the Horticultural Society in Regent Street.

After being in London for two years, Mr Douglas again sailed for Columbia in the autumn of 1829; where he has since been enjoying his favorite pursuit, and adding largely to his former discoveries. We were in expectation of his return by the very ship which has brought us the tidings of his horrible death; an event the more to be regretted from having been occasioned by circumstances which we shudder to contemplate — that of falling into a pit made by the natives of the Sandwich Islands for catching wild bulls, one of the latter being in it at the time.

Such, we understand, has been the unfortunate destiny of our intrepid friend and countryman, at the early age of thirtysix. Having known him intimately from a boy, we feel a mournful pleasure in looking back to the many agreeable hours we have spent in his society, and deeply deplore his untimely fate. — *W. B. B.*

M. PALLAS has, after repeated experiments, succeeded in procuring a crystallized sugar from the stalks of Indian corn, which bears a strong analogy to that extracted from beet root.

MISCELLANEOUS ARTICLES,

COLLECTED BY T. G. F.

POISON BY IVY. — Wash the parts affected with lime water, or weak ley as soon as the effects of the poison are perceived.

A CHEAP AND PLEASANT DENTRIFICE. — The juice of the strawberry, without any previous preparation dissolves the tartareous incrustations on the teeth, and sweetens the breath more effectually than many more costly applications meant for the same purpose.

TO PREPARE FRUIT FOR CHILDREN, &c. — Put apples sliced, or plums, currants, gooseberries, &c. into a stone jar, and sprinkle as much loaf or brown sugar, or molasses as necessary among them; set the jar on a hot hearth, or in a sauce pan of water, kept hot over a fire, and let it remain till the fruit is thoroughly done. This mode of preparing fruit makes them a more wholesome article of diet than when the fruit is made into pies, puddings, &c.

CURE FOR THE STING OF A WASP OR BEE. — A Liverpool paper states as follows:

A few days ago happening to be in the country, we witnessed the efficacy of the remedy for the sting of a wasp mentioned in one of our late papers. A little boy was stung severely and was in great torture, until an onion was applied to the part affected, when the cure was instantaneous. This important and simple remedy cannot be too generally known, and we pledge ourselves to the fact above stated.

FACTS WORTH KNOWING. — In New England, in the days of my grandmother, they used to preserve their ripe watermelons and green corn so as to have them fresh in winter and spring, by placing them till used, under their hay [stacks, or in hay mows in barns, &c.] This practice might be applied usefully to some other fruits and vegetables.

Farmers too, might easily save the flesh of horses and cows, and confer a kindness on their animals, in preventing the usual annoyance of flies, by simply oiling the parts most exposed. Flies will not light a moment on the spot over which an oiled sponge or cloth has been pressed. Probably either fish oil, or flax seed oil will answer. But what I have used with success is the tanner's oil. Every man who is compassionate to his beast ought to know this simple remedy, and every livery stable and country inn ought to have a supply at hand for the use of travellers. — *Philadelphia paper.*

PEACH TREES. — Mr William Phillips, of Pennsylvania, has de-

rived great benefit from the application of air slacked, old effete lime to peach trees, the effects of which, according to his own account, have been very great. He puts about a peck of lime to each tree; he thinks it useful as a preservative against the insect so fatal to these trees. We have then two applications recommended, unleached ashes and lime, and from our own experience are able to recommend both. We are not sure which has the preference. The lime and ashes should both be dug up every spring. A friend suggests that he killed his young peach trees by lime; caution is needed in the application. — *Mas. Ag. Rep.*

COLUMBIAN HORTICULTURAL SOCIETY.

A WRITER in the National Intelligencer with the signature W. gives a description of the exhibition of the Columbian Horticultural Society, at Washington on the 10th and 11th June and states that —

“ The Hall of exhibition, a large and spacious apartment in the City hall, was handsomely decorated with evergreens, which ornamented the doors, windows and portraits, that hung over the walls of the room. The entrance into the principal apartments was through an arcade, also formed of evergreens; and upon entering the hall, a scene of beauty and splendor burst upon the sight, of which it is difficult to form a just conception. The first object that struck the eye, in this fairy scene, was a large and magnificent pyramid of greenhouse plants, of every variety of exotics and displayed a mass of floral beauty, which from the combination of its parts, the harmonious disposition and blending of the colors, and the taste with which it was constructed and arranged could not be surpassed. Of the excellence of the various collections which formed this pyramid of living beauty, I cannot now speak, I leave it to the committee to whom the task has been assigned, and who will be more able to do justice to all. They were furnished by Messrs J. Pierce, General Douglas, Dick, Yates, Rich, &c. But, in speaking of these fine collections, so harmoniously combined by the hand of taste, into a mass of beauty, I cannot withhold the expression of my admiration at the large collection of beautiful pelargoniums or geraniums, distinguished for their size and brilliant colors, furnished by Mr W. Rich, one of the most zealous and indefatigable members of this useful Society, and to whose taste it is mainly

indebted for the fine arrangement which was observed in the whole apartment. The large pyramid, crowned with a sage plant, resembling a magnificent plume, was protected at its base by a neat wooden railing on the right and left of which, along the walls of the chamber, were disposed the various floral wonders of Asia, Africa and South America, pomegranates, orange and lemon trees, cactus, &c., &c., forming alleys between, strewed with rose leaves, and leading the spectator to other beauties in the floral kingdom, not less striking and delightful. On the tables in the eastern part of the Hall, to the right and left of the room, were smaller pyramids of roses, pinks, lilies, poppies, and every variety of garden flowers that the season could afford. These were prepared by Mrs Pierce, Mr Douglas, and other male and female florists of the District, in a manner highly creditable to their taste and industry. They did not differ, however, very essentially from those prepared for the first annual exhibition. These tables were also ornamented with numerous vases of garden flowers, and baskets of fruits, among which every one was struck by the beautifully arranged collections of violets, vases, &c, imbedded in moss, and presenting to the eye a richly colored painting, prepared by Mrs Suter with the tact and feeling of an artist. On the long table in front of the President's chair, the eye was struck by a beautiful vase, formed of the native flowers of the District, by the hand of Mrs Towson, a lady whose ardor in the cause of the Society is only equalled by her taste, and to whose exertions and zeal, with those of Mrs Suter, Mrs Bomford and other ladies, the exhibitions of the Society so far owe much of their splendor and beauty. How innocent, how beautiful how appropriate to the female hand, is such an occupation ! and how delightful and gratifying such a taste !

“ This table was also ornamented with glass and porcelain vases filled with a profusion of choice garden flowers, and with silver baskets, &c. of the finest strawberries, cherries, gooseberries and currants. Of the fruits, the most remarkable were the strawberries of Maj. Hickey, Mr Pierce and Mr Towson: the cherries and gooseberries of Mr Seaton, Mr Dick, Mr J. A. Smith and Mr Pierce; the currants from the garden of the President of the U. S. and of Mr Gales, and the English hautbois of Mr Cammack. The porcelain vases were those which were awarded as premiums to the successful competitors at the first exhibition of the society, and are fine specimens of the porcelain manufacture of this country.

“ Amidst this profusion of sweets, this banquet of Flora, the scent was regaled with the most delicious fragrance, the eye with the most

diversified and exquisite beauty, and the ear with the harmony of the Marine band, and the soft tones of the Æolian harp, and the delightful melody of the mocking bird, warbling its 'native wood notes wild' amid bowers of roses, and the verdant foliage and golden fruit of orange and lemon trees. The effect of such a scene may be more easily conceived than described. The senses of the imaginative were 'wrapped in Elysium,' and felt as if he were roving 'through the meanders of enchantment, and reposing by the water falls of Elysian gardens,' and in all, the scene produced a high degree of pleasure, and a rational gratification, that perhaps no spectacle of mere physical beauty could afford.

"In the vegetable department, the cabbages, turnips, peas, onions, cucumbers, potatoes, beets and other esculents of Messrs Camp, Cammack, Hickey, Douglas, Grimes, Barry, Naylor, Gales, Jenkins, &c. were remarkable for their magnitude and early maturity. Of these due notice will doubtless be taken by the committee, with a view to the awarding of the premiums, therefore, it is not necessary in this hasty sketch, to particularise. I will observe, however, that the vegetable department was much better filled, and the specimens of much larger growth at this than at the first exhibition, notwithstanding the severity of the past winter, and the lateness of the spring, which affords a striking evidence of the stimulating and beneficial effects of the society on the growers of these fine vegetables, within our District. Indeed the whole exhibition affords the most gratifying proof of the utility of the institution, which is destined, from its locality and the zeal and enterprise of its members, to be of incalculable benefit to our country.

"In addition to the garden vegetables, several specimens of agricultural products were exhibited. Stalks of rye from seven and a half to eight feet high, by Mr J. A. Smith, and Mr W. A. Bradley, and some extraordinary red clover, by Mr Smith and Maj. Hickey.

"This gratifying exhibition was closed in the evening of the 11th by an excellent introductory lecture from Dr T. P. Jones, the society's lecturer on horticultural chemistry, which evinced much research and intimate knowledge of the subject.

"The interest excited by this exhibition was such as to bring, during both days, and especially at night, crowds of spectators to gaze on this scene of floral beauty and enchantment, and it is believed that all who went were in a high degree gratified. Nor could it be otherwise; for callous must the heart, and torpid the feelings of that being who could be placed amidst such a scene and look upon it with apathy and indifference."

MASSACHUSETTS HORTICULTURAL SOCIETY.

THE exhibitions of this Society for the month past have been attractive and gratifying to visitors, as well as honorable to the members of that institution. Lists of fruits, flowers and vegetables shown at the Society's Hall are given at large every week in the *New England Farmer*, and their repetition might be deemed superfluous in this Register. We shall however advert to the most remarkable.

May 30. From the conservatory of the Hon. Mr Lowell. A splendid *Cactus speciocissimus* of large size, with a profusion of flowers finely grown. L. Josselyn, Esq., Messrs Hovey, E. M. Richards, Esq., Mr Thomas Mason, exhibited varieties of elegant flowers.

June 6. William Carter, Joseph Morton, Messrs Hovey, John A. Kenrick, Thomas Mason, S. Walker, fine flowers. John Waters, a remarkably large Snow Ball, flower twentytwo inches in circumference.

June 13. Samuel Walker, S. Sweetser, John A. Kenrick, James Kavenagh, William Kenrick, Samuel Pond, Amos Atkinson, Edward Augustus Story, exhibited flowers. J. L. L. F. Warren and Joseph Warren, strawberries.

June 20. "The brilliant display of flowers," says Mr Winship, "exhibited this day justly excited the admiration of all amateurs, and especially those shown from the conservatory of that distinguished horticulturist, the Hon. Mr Lowell; some of them were new and never before exhibited at the Society's rooms. The *Cactus speciocissimus* was beautiful and the interest evinced was very great on account of several large sized flowers being produced on a branch of small size." The other exhibitors were those who have heretofore contributed to shows of the Society.

June 27. "The display of flowers, this day," according to Mr Winship, "was unrivalled at any former exhibition at this season of the year. The great increase of beautiful and new roses, herbaceous and shrub flowers excited general admiration. The contributors were M. P. Wilder, Thomas Mason, S. Walker, John A. Kenrick and Messrs Winship.

The show of fruits, principally strawberries, as reported by Mr B. V. French, "was probably finer than was ever before exhibited at the Society's tables." The contributors were T. Hastings, Hon. E.

Vose, J. L. L. F. Warren, Richard Ward, Messrs Hovey, Jacob Tidd.
A melon cucumber from A. D. Williams, Roxbury.

The following list of officers were chosen :

<i>President.</i>	SAMUEL DOWNER,
HON. ELIJAH VOSE.	E. M. RICHARDS,
	B. V. FRENCH.
<i>Vice Presidents.</i>	
E. BARTLETT,	<i>Committee on Flowers.</i>
S. A. SHURTLEFF,	J. E. TESCHEMACHER.
G. W. PRATT.	
	<i>Committee on Library.</i>
<i>Corresponding Secretary.</i>	J. E. TESCHEMACHER,
R. T. PAINE.	E. WESTON, JR.
<i>Recording Secretary.</i>	<i>Committee on Synonyms of Fruit.</i>
E. WESTON, JR.	SAMUEL DOWNER.
<i>Counsellors.</i>	<i>Executive Committee.</i>
SAMUEL DOWNER,	CHEEVER NEWHALL.
JOHN W. BOOTT,	GEORGE W. PRATT,
E. M. RICHARDS,	L. P. GROSVENER.
JOHN PRINCE.	
	<i>Committee on Finance.</i>
<i>Committee on Fruit.</i>	B. V. FRENCH,
S. A. SHURTLEFF.	CHEEVER NEWHALL.

GARDENER'S WORK FOR JULY.

KEEP all your crops free from weeds, and clean and prepare the ground where your early growth of peas, spinage, cauliflowers, early cabbages, &c. have grown. See that every vacant spot is planted with some useful herb, root, or shrub, for a good gardener, as well as dame nature abhors a vacuum. Continue to sow small-salading every eight or ten days as in former months ; but they should now be sown on shady borders, or else be occasionally protected by mats or screens from the mid-day sun. It is, or soon will be time to plant out your celery plants in trenches ; and in performing this you may proceed as directed page 23 in our No. of January last. About the middle of this month, and so on to the first of August you may sow turnips. Abercrombie recommends to steep the seed in sulphur-water, putting an ounce of sulphur to a pint of water, which, he says, will be suffi-

cient for a pint of seed. The method of sowing is either broad-cast or in drills. In the former mode Abercrombie directs to allow half an ounce of seed to every hundred square feet." Thin and transplant such lettuces as were sown last month that you may have a constant supply for the table. Sow radishes, each sort separately; and for a bed four feet six inches by twelve feet, two ounces will be required. They may be sown either broad-cast or in drills, but the latter is to be preferred. If you sow in drills, let them be for the smaller spindle rooted kinds half an inch deep, and about two inches and a half asunder; for the small turnip-rooted, three quarters of an inch deep, and four or five inches asunder; and for the black turnip or Spanish six or eight inches asunder; the root growing to the size of a middle sized turnip requires that distance. The *Farmer's Assistant* says that radishes being liable to be eaten by worms, the following method is recommended for raising them: Take equal quantities of buck-wheat bran, and fresh horse dung, and mix them well and plentifully in the ground by digging. Suddenly after this a great fermentation will be produced, and numbers of mushrooms will start up in fortyeight hours. Dig the ground over again and sow the seed, and the radishes will grow with great rapidity, and be free from the attacks of insects. In the last week in this month a crop of spinage may be sown for use in autumn; it will not then be so liable to go to seed as if it were sown earlier. It has been recommended to sow early sorts of cabbages about this time, for a supply of young greens during autumn. Crops of melons, cucumbers and squashes should now be kept very clean and free from weeds, the spaces between the hills must be carefully hoed in dry weather, taking care not to injure the vines. Sow Ruta бага, alias Swedish Turnip. M'Mahon observed that "this variety of the turnip is the most important of all, and deserves to be ranked in the first class of vegetable productions. Its quantity of produce, richness of flavor, and extreme hardiness render it of great importance, and give it a pre-eminence over every other kind.

The best time for sowing is from the twentieth of June to the twentieth of July, according to the season. The ground should be well prepared and manure scattered pretty thickly over; which done, it should be laid off in ridges about three feet apart, two furrows together, with the plough, and the seed sown on the top. By this method you have a double portion of manure in each row of turnips, and a better opportunity of attending to their after culture."

Collect all kinds of seeds as they come to maturity, cutting off or

pulling up the stems with the seeds attached as they ripen. Spread them in some airy place under cover, turning them now and then, that the seeds may dry and harden gradually, and be careful not to lay them so thick as to hazard their heating and fermenting. When they are sufficiently dry, beat out and clean the seed, and deposit them in bags or boxes till wanted. Give water to such plants as require it; but apply in the evening, water which has been previously warmed by a day's exposure to sunshine. Continue to nurse your plants with the hoe in the morning, and do not omit this attention to this indispensable branch of culture till frosts and snows shall supersede your labors.

FRUIT GARDEN AND ORCHARD. About this time you may attend to budding. "Budded trees are generally two years later in producing their fruit than grafted ones, but the advantage of budding is that where a plant is rare a new plant can be got from every eye; whereas by grafting it can only be got from every three or four eyes. There are also trees which propagate much more readily by budding than grafting; and others, as most of the stone fruits, are apt to throw out gum when grafted. When grafting has been omitted or has failed, in spring, budding comes in as an auxiliary in summer."*

Look carefully over your wall and espalier trees, rubbing off such shoots as project in front, train in all such regular growths as are designed to remain, close to the wall or espalier, at proper distances and positions. M'Mahon directs never to pull off any of the leaves nor thin the branches in order to expose the fruit to the sun; as the sudden exposure would be extremely injurious to them; by it their skin would be hardened and contracted and their growth greatly retarded.

The same writer directs to "pick off all punctured and decaying fruits and give them to the hogs; also such as have fallen, in that state, from the trees; for the worms that are in these fruit, which have been the cause of their decline, will soon arrive at their fly or winged state, and attack the remaining fruit." Or, if more convenient, pigs may be turned into the orchard, about the time fruit begins to fall, to eat up what drops and destroy the insect which it contains.

VINEYARD. — Keep the ground free from weeds by plough, harrow or hoe. Weeds not only rob the vines of nourishment, but by perspiring dampen the air, and injure the fruit. Towards the last of

* See Loudon's Enc. of Gard. Likewise N. A. Gardener, p. 165, for particular directions relative to budding.

the month nip off the fruit bearing shoots in order to check their growth and to afford more nourishment to the grapes. But these shoots ought not to be nipped too close to the fruit, as that would check the circulation of the juices and the ripening of the fruit.

M'Mahon says, "such shoots as are intended to be cut down in the pruning season *for next year's fruiting*, are by no means to be topped, but should be suffered to grow at full length, taking care to keep them constantly divested of any side-branches, which ought always to be rubbed off as they appear. Were those to be topped at this season, it would force out at an untimely period, many of the flower-buds which nature had designed for the ensuing year, and consequently, at that time render the vines barren and unproductive.

NURSERY. — Attend to grafted trees. In about a month after grafting, it may be ascertained whether the scion has *united* with the stock by observing the progress of its buds, but in general, it is not safe to remove the clay for three months or more, till the graft be completely cicatrized. The clay may generally be taken off in July or August, and at the same time the ligatures loosened where the scion seems to require more room to expand; a few weeks afterwards when the parts have thus been partially inured to the air, and there is no danger of the scion being blown off by the wind, the whole of the ligatures may be removed. If the stock was not shortened down close to the graft or junction of the scion with the stock, at the time of the operation, it may be done now, or as soon as the ligatures can be dispensed with. In particular cases a ligature round the graft or a stake, for the shoots of the scions, may be necessary for a year to come, to protect against winds; or a bandage of moss kept over the graft, to preserve moisture and encourage the expansion of the parts, and complete the filling up of the wound. — *Encyc. of Gard.*

FANEUIL HALL MARKET.

SATURDAY, JUNE 27, 1835.

VEGETABLES. — Peas \$1 a bushel; early string beans \$1 a bushel; (these are the first in the market this season;) radishes 3 cents a bunch; onions 6 cents a bunch; early cabbages 6½ cents a head; Lettuce 3 cents a head; turnips 6 cents a bunch; rhubarb 6 cents a pound; cucumbers \$1 to \$1,50 cents a dozen.

FRUIT. — Strawberries 25 to 50 cents a box; Gooseberries 12½ cents a box; currants 12½ cents a quart; cherries 12½ cents a quart.

THE
HORTICULTURAL REGISTER

AND

GARDENER'S MAGAZINE.

AUGUST 1, 1835.

ON BOTANIC GARDENS AND HORTICULTURAL SOCIETIES.

THERE are not many instances where these institutions have been begun and continued with economy and success, or which have been conducted with that singleness of purpose to subserve to public utility, which ought to be the basis and the end of such establishments. Scientific men who are generally and on some accounts properly selected to superintend them, and to conduct the affairs, do not often possess those habits of business or economy which fit them to control the money concerns or enter into the calculations so necessary to ensure the greatest possible effect at the smallest expense. This is the quicksand which has nearly engulfed several attempts, undertaken in the best possible spirit, and with the most unbounded liberality. It is true, the field of experiment is often expensive to cultivate, and the crop inadequate, nor is it always practicable, strictly to limit beforehand the cost; yet the idea of these institutions being in debt, is so repugnant, that every advantage ought to be foregone rather than this result be produced; it is the first signal of disunion and dissolution.

Botanical collections of plants exotic and indigenous, experiments on edible vegetables and fruits, their improvement and cultivation, the production of species by hybridising, the selection of best stocks for grafting, the study of all the laws governing vegetable life, and the public promulgation of results, are the useful and proper aims of Botanic Gardens, but there is one purpose which I think is scarcely considered of sufficient weight. I allude to the numerous tribes of

depredating insects which annually devastate acres and miles of cultivation, filling the heart of the industrious farmer and horticulturist with dismay.

Of what use is it to manure, to sow and to till on the most approved systems, to toil, to eradicate the weed, if the crop is to be devoured by the ravages of the fly? For what purpose do we select our trees, our grafts, and plant our orchards, if the fair promise is to be destroyed by the canker worm.

It is highly meritorious to point out to the farmer the best methods of planting, manuring, and raising crops, but not less so to teach him how to preserve them, that his granaries be filled with corn and all manner of fruits.

Entomology or the knowledge, not of the mere names, but of the nature, habits, food, &c., of insects, is thus in an especial manner combined with botanical knowledge, and particularly with the practical and useful branches of it, therefore, in all Botanic Gardens where one head does not unite both studies, a second should be added, and an active efficient committee be appointed for the purpose of directing experiments.

In most public establishments the insect tribe are destroyed as soon as they appear, and the gardeners pride themselves on the cleanliness of their plants and trees, and this is praiseworthy, although by it every ground for experiment is removed.

As soon as a tree is discovered to be infested with any insect it should be devoted to entomological experiment, and the creature be watched in all its states, in every one of which various applications might be made with the view of ascertaining what would be most injurious to the insect, its eggs, &c., with the least hurt to the trees, in order to decide in what state it may most easily be subdued; the date and method of its arrival, stay and departure after providing for its reproduction, should be carefully noted, with every other particular necessary to elucidate its natural history.

These observations might be carried on in the garden itself occasionally as opportunities offered, for the propriety of introducing a noxious insect into the establishment for the sake of experiment might well be questioned, but a much larger sphere of utility would be open for an active committee, in instituting trials under their immediate direction in the infested gardens or farms of the members of the Society.

Often as I have passed large apple orchards entirely denuded of

their foliage in the midsummer, by the canker worm, have I regretted that they were not placed under the superintendence of such a committee, and every six or more trees subjected to different tests for the destruction of the destroyer ; it seems improbable that judgment and perseverance should not sooner or later discover some remedy for this scourge, which would be easy in application and reasonable in expense ; and thus with every other depredator.

There are some insects which prey on others, so that a gardener or farmer in ignorance may destroy a protector, and many birds who feed on insects are killed by the gun, or driven away by various devices, that they may not devour a few cherries or other fruits ; this is hardly fair, they are certainly entitled to a share of the dessert ; for myself they are always welcome to my portion in return for the charm of their company ; the beauty of their plumage, their graceful motions, their sweet and lively warbling, is as effectual a preventive of hypochondria, as the sparkling wit, or the merry song of conviviality.

There is much reason to believe that different manures, from the nurseries, and even perhaps the vehicles of introduction of various vermin ; this might make an object of attention, as well as experiments on the strengths of them, and their value in different stages of decomposition. Many good cultivators agree with me in opinion, that the mellowing of manure by what is termed leaving it twelve or eighteen months to ripen, is attended by considerable loss of strength and valuable properties ; this is of consequence, where, as in agriculture, it is required to be spread over as large a surface as possible ; yet, for many plants fresh manure is indisputably too hot and rank.

It must not be imagined that although every work on agriculture or horticulture teems with recipes and preventives against almost every insect known, that there is not much still to be effected on this important subject ; the ravages of the canker worm still desolate our orchards and the curculio still punctures and destroys our fruit ; the great advantage of Societies on these subjects, is the high authority they establish for the operations they recommend, and the certainty that no mode of proceeding can be promulgated by them which has not received the sanction of careful experiment.

The subscription of two or three dollars annually, for the purpose of such associations, is a mere trifle to the man who possesses acres of tillage or orchard land, nor is it of much more consequence to the inhabitants of the city, the price of whose consumption of fruit and

vegetables depends on the plenty or scarcity of the quantity raised by the good or bad management, that is, the ignorance or knowledge of the farmer.

In this, however, as in most associations, everything depends on proper direction, on the economical application of the funds, and on the extent of public spirit, which ought to prompt some to devote a portion of their time for the benefit of society, and others whose talents and experience have justly given weight to their names, to afford by the influence of their example every possible support to such undertakings. The Agricultural and Horticultural Societies already formed, have already been of great and acknowledged service, and under improved management, for who is bold enough to aver that they are now all in their ultimate state of perfection, will no doubt render many more essential services; in addition to this they raise the character of the tiller of the soil in public estimation, by exhibiting the splendid effects of industry, energy and ingenuity, while they bring into agreeable contact and frequent communication, men the similarity of whose pursuits give a charm and a relish to their mutual intercourse.

J. E. T.

ON THE PEACH, NECTARINE, AND APRICOT.

[Continued from our last.]

ON the subject of pruning, it may be well to observe that what is called in Europe, autumnal pruning had better be altogether omitted in this country, as certainly the wounds inflicted by cutting at that period do not get sufficiently healed to stand the usual severity of the winter season.

The nectarine is called *Persica lævis*, the smooth peach, and according to Forsyth, received its common appellation from nectar, the poetical drink of the fabulous gods of the ancients. The flesh is rather firmer and the whole fruit more plump than the peach, — like this, the varieties are divided into freestone and clingstone.

FREESTONE NECTARINES.

HOY'S NEW SEEDLING. — Leaves with reniform glands; flowers small; fruit middle size, pale green and red, ripens about the beginning of September, somewhat resembles the Elruge.

ELRUGE, *Claremont*, *Oatlands*, of others. Leaves with reniform glands; flowers small; fruit middle sized, pale green and red, ripens about the end August; flesh white almost to the stone; a very free bearer, and well adapted for the forcing house.

BALGONE. Leaves with reniform glands; flowers small; fruit large, pale greenish, red on the sunny side; ripens beginning of September.

BRUGNON, *red at the stone*, commonly called *Brinion*. Leaves with reniform glands; flowers small; fruit large, pale yellow, red on the sunny side; ripens beginning of September.

DU TELLIER'S, *du Tilly's*, *Duc de Tello*. Leaves with reniform glands; flowers small; fruit large, pale green and red; ripens beginning of September.

DOWNTON. Leaves with reniform glands; flowers small; fruit large, pale green and red; ripens middle to end of August.

MURY, *Black Mury*. Leaves with reniform glands; flowers small; fruit middling size, pale green on one side and very dark red on the other; ripens middle of August.

PITMASTON ORANGE, *Williams' Orange*. Leaves with globular glands; flowers large, orange and dark red, ripens middle of August; a very fine bearer and hardy, therefore particularly suitable for this climate.

HUNT'S EARLY TAWNY. Leaves without glands; flowers small; fruit middling size, orange and dark red, ripens beginning of August. A very distinct sort and valuable for its early maturity.

TEMPLE'S. Leaves with reniform glands; flowers small; fruit rather under middling size, pale green and red; ripens end of August, rather inclined to shrivel when ripe.

VERMASH, *True Vermash*. Leaves with reniform glands; flowers large; fruit middling size, green and red; ripens middle of August; rather rare.

EARLY VIOLET, *Grosse Violet hâtive*, *Violette de Courson*, *le gros Brugnon*. Leaves with reniform glands; flowers small; fruit large, pale greenish and red; ripens end of August, flesh very red at the stone.

EARLY VIOLET, of Hooker, *Lord Selsey's Elruge*, *Hampton Court*, *New Scarlet*, &c. Leaves with reniform glands; flowers small; fruit large, pale green and red; ripens beginning and middle of August; differs from the preceding somewhat in taste, ripens earlier, and is much better adapted for the forcing house; both are, however, first rate sorts.

AROMATIC. Rather resembles the last named. Leaves with reniform glands; flowers small; fruit pale yellow and red, middling size, ripens end of August.

OLD WHITE. Leaves with reniform gland; flowers large; fruit large, white, ripening early in August. Favorable soil and situation have great effect in the flavor and richness of this sort, which in contrary circumstances is hardly worth eating.

PERKINS' SEEDLING. A seedling raised by S. G. Perkins, Esq. from the Lewis nectarine, a beautiful fine fruit, globular, bright yellow, but of a dark purple crimson on the sunny side. — [Kenrick's Orchardist.]

CLINGSTONE NECTARINES.

LATE NEWINGTON, *Red Roman*, of some, *Old Newington*. Leaves without glands; flowers large; fruit dark red, large, ripens in September; a free bearer, shrivels when ripe and then only fit to eat.

EARLY NEWINGTON, *Early Black*, *Lucombe's Seedling*. Leaves without glands; flowers large; fruit large, dark red, ripens early in August.

TAWNY NEWINGTON. Leaves without glands; flowers large; fruit large yellowish brown, red on the sunny side, ripens beginning of August.

ROMAN, *Old Roman*, *Red Roman*, *Brugnon musqué* of Duhamel. Leaves with reniform glands; flowers large; fruit large, green, brown and red; ripens beginning of August.

IMPERATRICE. Leaves with reniform glands; flowers small; fruit large, dark red; hangs and shrivels like a Newington.

The preceding selection contains only very first rate sorts; there are others either not sufficiently known for description, or of which the fruit is rather inferior, but yet which may perhaps be more hardy or have other qualities, entitling them to cultivation; such are

Pince's Golden, *Bright Red Alberge*, *Ford's Seedling*, *Fox's Seedling*, *Please's Seedling*, *Pholia*, *Lyndoch*, *Sand's Seedling*, &c. The skin of the nectarine not being protected by down, like the peach, renders it more liable to the attacks of the insect tribe, from which the precautions, taken in countries where the trees are cultivated with much care and trained on walls, would hardly protect the standards here; the numerous recipes are therefore omitted.

The **APRICOT, *Armeniaca***, so called from its originally having been introduced from Armenia, is altogether a different tree from the

preceding, both in habit and fruit. The flowers are white, tinged with red, and appear the end of April or beginning of May on shoots of the preceding year, and on spurs of two or more years old, consequently the pruning requires a totally different management from the peach or nectarine. Generally speaking the apricot is rather impatient of the knife, and many trees are injured by over pruning.

The best time is in March or just previous to the bursting of the blossom; where spurs are too numerous on old wood they should be carefully thinned out, also cut some of the most naked parts of the last two years' bearing branches, always cutting to either a leading young shoot or to a lateral which may be converted into one. Such shoots as are retained for bearing should be moderately shortened, if weak to one half. Never prune below all the blossom buds, except to provide wood, in which case cut near the origin of the new branch, taking care of the spur.

The apricot is much better for preserves, marmalades, jelly and other confectionary, than when fresh; the Chinese make the clarified juice into lozenges, and the thinnings of the fruit when green and made into tarts are justly esteemed a great delicacy; if allowed to grow too thick they will never attain a good size or flavor; three or four inches asunder is a proper distance for them to be left to ripen.

Pallas says that the mountains in Caucasus are covered with the apricot to their very summits.

MOORPARK, *Abricot de Nancy* of Duhamel. Leaves large, roundish, pointed; fruit large, roundish, compressed; skin of a brownish orange color; flesh dull reddish orange, juice high flavor peculiar to this sort. The next in value is the

HEEMSKIRKE. The whole tree rather resembles the Moorpark; the flesh of the fruit very bright deep clear orange, tender, juicy, rather sweeter than the Moorpark, with a rich delicate flavor.

LARGE EARLY APRICOT, *Abricot gros precoce*, *Abricot de gaen*, *die grosse früh Apricose* of Sickler. Leaves large, broad oval, tapering to the petiole. Fruit large oblong, the back nearly straight; skin downy, red orange on the sunny side, pale orange on the other; flesh juicy and rich, ripens early in July.

ROYAL APRICOT, *Abricot Royale*. Fruit about the size of the Moorpark, of a dull yellow color, slightly colored with red in a small space; rather more acid than the preceding; is valuable, as it ripens from a week to a fortnight earlier than the Moorpark.

WHITE MASCULINE, *Abricot blanc*, of Duhamel, *Abricot peche*, of

Mayer. An early and excellent fruit, flesh pale yellow, juicy, tender, parting from the stone; flowers small, fruit round, rather small.

CRUFT'S LATE APRICOT. A large and very superior fruit which lately originated in the garden of Edward Cruft, Esq. Boston. Very rich, juicy and sweet; in the opinion of good judges a variety of surpassing excellence.

MUSCH MUSCH APRICOT, *Abricot d'Alexandrie.* Leaves roundish, pointed, doubly serrated or toothed; fruit about the size of the Masculine, roundish, compressed, skin straw colored and deep orange on the sunny side; flesh very tender and sweet, semi-transparent, kernel of the stone sweet like a nut—probably a native of the moist pastures which abound in the midst of the deserts of Upper Egypt, where the fruit is gathered in large quantities, dried and brought in that state for sale. This sort is hardly enough known either here or in Europe, for its value to be ascertained.

There are several varieties of the apricot which are preferable for preserving; those recited are more fit for the dessert. For confectionary the most esteemed sorts are the

Montgamet Apricot, Orange Apricot, a very abundant bearer, Brussels Apricot.

The apricot is generally propagated by budding on a plum stock, but Mr Knight in the Hort. Trans. recommends budding the Moorpark on a seedling apricot stock, which he has found prevents the trees from becoming diseased and debilitated, as is apt to be the case on plum stocks. From the middle of June to the end of July is the proper season for this operation: the apricot will not readily bear forcing, but it is naturally an early fruit.

There are some other varieties of the apricot interesting to botanists. *Armeniaca dasycarpa* with a black fruit, eatable, called *Abricot noir* in the French gardens.

Armeniaca persicifolia, peach leaved apricot. Fruit variegated with yellow and red.

Armeniaca Sibirica. Siberian apricot, with rose colored flowers. In Transalpine Dauria, the mountains are clothed on the north side with the purple flowers of *Rhododendron dauricum*, and on the south with the rose colored flowers of the apricot.

Armeniaca brigantiaca, a native of Briançon in France; flowers white or pink; the inhabitants express an oil from the kernel, which serves all the purposes of olive or almond oil.

At the meeting of the London Horticultural Society last May, Mr Lindley read a translation of "Observations on grafting apricot trees,

by Mr Deval, Secretary to the Antwerp Hort. Soc." He attributes the frequent failure of grafts to the age of the wood on which the graft is made ; the vitality of the tree being too much exhausted previous to the adhesion of the scion. When wood of two, three or even four years was employed the operation seldom failed. J. E. T.

THE CELEBRATED CEDAR TREES OF LEBANON.

THESE form the subject of one of the landscape illustrations of the Bible, by Finden, lately published in London. They were sketched by C. Barry and the engravings are in the first style of the art. J. H. Horne on these far famed trees, observes that they are situated on a small eminence in a valley at the foot of the highest portion of the mountain.

The land on the mountain side has a sterile aspect, and the trees are remarkable for being in a single clump.

By the natives they are called Arsileban. There are in fact two generations of trees, the oldest are large and massy, four or five and even seven trunks springing from one base, they rear their heads to an enormous height, spreading their branches afar, and they are not found in any other part of Lebanon, though young trees are occasionally met with.

The ancient cedars, those which superstition has consecrated as holy, and which are the chief objects of the traveller's curiosity, have been gradually diminishing in number for the last three centuries, as may be noted from the following record.

In 1550 Belloni found there twentyeight in number.

1575 Rauwolf, twentyfour.

about 1600 Dandini, }
 " 1650 Thevenot, } twentythree.

1697 in Maundrell's time they had dwindled down to sixteen.

1738 Dr Pococke only found fifteen standing.

1810 Burckhardt, eleven or twelve, but there were 250 others of a very large size, about fifty of middling size, and more than 300 smaller and young ones ; lastly, in 1818 Dr Richardson found that the old cedars, *the glory of Lebanon* were no more than seven in number.

In the course of another century, perhaps, not a vestige of them will remain, and the prediction of the prophets will be most literally fulfilled.

[For the Horticultural Register.]

VALUABLE DONATIONS OF NEW FRUITS.

MR EDITOR — It may not be forgotten, that during the summer of 1831, a valuable donation of scions of many new kinds of Pears, of undoubted excellence, was sent by Professor Van Mons of Louvain in Belgium, to the Massachusetts Horticultural Society. Unfortunately, those were delayed in a protracted route through Paris and France, and never arrived in America till August, and then though evidently in a ruined condition, every art, every exertion, was essayed to save them, but in vain, for their destruction was total.

The next year, or in 1832, another consignment of scions of more than a hundred and twenty new kinds of Pears, was sent by Dr Van Mons, to the same Society, together with some sheets direct from the press, of certain publications having reference to them. The letter to Gen. Dearborn indeed came as directed, but the donation of the new kinds of fruit, and the publications which accompanied them, were utterly lost, and never arrived at their destination, and no intelligence concerning their fate could ever be obtained.

At a later date, application was made to Dr Van Mons, by Mr Robert Manning and myself individually, for the renewal of these same kinds which had been sent by him in the former donation to the society; also for some other new and celebrated kinds which had been described either by him or by M. Bosc, in the celebrated *Nouveau Cours Complet D'Agriculture*; and through his distinguished liberality and philanthropy, scions of a numerous list of new varieties which are described as of first rate excellence, have been sent to us, during the years 1834 and 1835. More than ninety *named* kinds have thus been received, most of all which are new to our country and most all are now living, and growing. Besides these, scions of many other new, and as yet *unnamed* kinds were sent, near seventy of which are also living and growing. All these last designated are by *numbers*, which according to Dr Van Mons have been described by him in a volume which was then in press, at the time his last letter was written.

Among the kinds renewed of those formerly sent and lost, we find the "*Dearborn*," — a fruit, which according to M. Van Mons, has been pronounced exquisite by amateurs. It was so named by

him for Gen. Dearborn, now the Adjutant General of the Commonwealth, and so lately the excellent, the indefatigable President of the Massachusetts Horticultural Society. Another new kind has also been sent, which he has called the *Becurre Manning*, so named by Dr Van Mons for our excellent friend Mr Manning. And another which he has named *Kenrick* for the writer of this article.

Besides all these, a few new kinds, unnamed, of other species have been received, most of which are alive and doing well.

During these same years of 1834 and 1835, other donations have been received from the London Horticultural Society, through the liberality of and munificence and by the special decision of the council, to whom our application was referred. Most of these are selections of new Flemish kinds which have all been proved in the celebrated garden of their society at Chiswick, and have been noted in their descriptive catalogue of the vast collection of fruits which have there been congregated from all countries, to the date of the volume in 1831. These descriptions are ascribed to Mr Robert Thompson, who is the superintendent of this department, and who is so eminently distinguished for his research and knowledge and accuracy on these subjects.

Some few of the kinds which we have thus received, we had indeed received before, from other and less sure sources, but were anxious to test their genuineness by comparison from these peculiar sources, which have now become so celebrated for their intelligence and accuracy.

As to the varieties of apples sent from London, they were a few which by particular request were selected by Mr Thompson, not from among those kinds which succeed best of all in England, but as the most celebrated kinds in the *more southern* sections of Europe; these being from the climates more congenial with our own during summer.

These new and rare additions to our list of fruits, the result of the years of incessant and unwearied toils of the most scientific cultivators on earth, will enable us shortly, as we trust, to make from them, a new and most superior selection, of a limited number, adapted to our highly favored climate.

Other donations of a few rare, new and valuable varieties have also been received from M. Saul, an Amateur of Lancaster in the interior of England, from Dr S. P. Hildreth of Marietta, Ohio, and from numerous other sources.

New kinds of Pears received of Professor Van Mons, during the years 1834 and 1835.

1	D'Arenburg	48	Enfant Prodige
2	D'Amandes Double	49	Figue <i>Extra</i> , not of France
3	Bakpeer	50	Fleur de Neige
*4	Belle Alliance	51	Fondante des Bois
*5	Bergamotte Libboten	52	Fourcroy Bouvier
6	—— Tardive	53	Gros Bruyn
7	Beurre Beauchamps	*54	Gros Colmar Van Mons, keeps two years
8	—— Bonnet	55	Henkel
9	—— Bronze	56	Henri Van Mons
10	—— Duquesne, <i>very early, very fine</i>	57	Henriette
11	—— Leutin	58	Hericart, a production of 1834, and worthy its name
*12	—— Manning	59	Innominee
13	Bezi Blanc	60	Josephine or Jaminette, Sabine of the French
*14	—— Crassanne Tardive	61	Jubin
*15	—— de Louvain	62	Jutte or Buist
16	—— du Printemps	63	Kenrick
17	Bois Napoleon	64	Leon le Clerc
18	Bon Chretien D'Espagne	65	Louise de Bologna
19	Bon Parent	66	Louise Bonne Real
20	Bosc	*67	Louise ed Prusse
*21	Bosc D'Ete	68	Madame Verte
22	Brande's St Germain	69	Maly
23	Bretagne leCour, 2 lbs. <i>delicate to cook.</i>	70	Marie
*24	Calebasse Bauchau	71	Marie Louise
*25	—— Marianne	72	Marie Louise (Bis)
26	—— Monstreu	73	Marie Louise, Nova
*27	—— Verte	*74	Napoleon
28	Capiaumont	75	Naver
*29	Capucine Van Mons	76	Niel
30	Charles Van Mons	77	Oken D'Hiver
*31	Charlotte D'Anvers	78	Pileau
32	Clara	79	Poire Limon
33	Colmar Gossart	80	Quetelet
34	Coter Peer	81	Rameau
*35	Crommen Boom	82	Reine des Pays Bas
36	Curtet	83	Rouselette de Meester
37	Davy	84	—— Sucre
38	<i>Dearborn</i>	85	—— Sutin
39	Delbecq	86	—— Van Mons
40	Delices de Charles	87	Santellette
41	—— de Jodoigne	*88	Serrurier
42	Dillen	89	Spoelberg (Vicomte)
43	Doyenne Louis	90	Spreun
44	Doyenne de Mons	91	Van Assene
45	Dumortier	92	William.
46	Dundas	93	Wurtemberg
47	Duparrian		

The numerous varieties designated by numbers are here omitted.

List of Fruits received from the London Horticultural Society, during the years 1834 and 1835.

PEARS.			
1	D'Arenberg	6	Beurre Beauchamps
2	D'Amaulis	7	—— Bosc
3	D'Ananas D'Ete	8	—— Capiaumont
4	Alpha	9	—— Crapaud
5	Autumn Colmar	10	—— Duquesne
		11	—— Duval

12	Beurre Easter	33	Henri Quatre
13	—— Van Mons	34	King Edwards
14	Bezi Vaet	35	Louise Bonne de Jersey
15	Bishop's Thumb	36	Monarch (Knight's)
16	Charles D'Autriche	37	Ne Plus Meuris
17	Colmar Neill	38	Parmentier
18	Comte Lany	39	Passans de Portugal
19	Delices D'Hardenpont	40	Passa Tutti
20	Duchesse de Mars	41	Poire Sabine
21	Early Bergamotte	42	Reine des Poires
22	Famenga	43	Spence
23	Flemish Beauty	44	Thomson's
24	Fondante D'Automne	45	Tillington
25	Fondante Van Mons	46	Whitfield
26	Forme de Delices	47	Winter Crassanne.
27	Fourcroy		
28	Garnons		APPLES.
29	Glout Morceau		Brabant Belle Fleur
30	Grumkower Winterbirne.		Calville Blanche D'Ete
31	Hacon's Incomparable		Gravenstein
32	Hazel		Mela Carla

The mode adopted by Mr Manning for saving these scions, consisted in cleft grafting part of them on thrifty stalks. But part were preserved by crown grafting, which he considers much more sure. The scion being prepared for splicing, by being cut sloping, and the top of the stock being sawn off, a slit of about an inch long is made from the top of the stock downwards and the bark being raised the scion is inserted between the bark and the wood, — and a bandage of matting being applied around the stock, it is covered with clay or grafting composition. But side grafting Mr M. has found is still more infallible. This is performed in the same manner as in crown grafting, except that it is performed below the *summit*, that the sap may continue circulating above. A cross cut being made in the stock, and a vertical slit proceeding downwards from this, the bark is shaved down from above, and removed, that the scion may fit close; this being inserted and secured with a bandage is covered with clay. Some of these kinds which were not received till late in May and late in June were in a desperate or ruined state. Where life existed I found that inoculating them in thrifty young stocks was the most infallible of all modes to save them. The buds in this case were taken off from the scion with a small thin slip of wood, which occupied about one third of its length on the middle section beneath the eye. The very tip of the twig was transformed to a scion as in splicing and thrust downward beneath the bark as in inoculating, and bound around with matting and the exposed parts of the wound covered either with a string or with grafting wax. *Many kinds* I have saved by these last modes, for I practised no other. Gradually the top of the stalk was reduced and the whole force of the tree transferred to the bud.

Many of these scions were much dried up or shrivelled. These were recovered by steeping in fresh water, till the moment they had become saturated or swollen to the natural size, when they were grafted or inoculated without delay. While some few required but a few hours, it was absolutely necessary to steep others for a week or ten days.

WILLIAM KENRICK.

Newton, July 13, 1835.

BOSTON ASYLUM AND FARM SCHOOL, ON THOMPSON'S ISLAND,
BOSTON HARBOR.

WE were much gratified with a visit to this institution, and think the principles on which it is founded, and the manner of carrying these principles into execution, need only be known to insure for the establishment the hearty and active support of all whose minds are rightly disposed towards their fellow creatures, and whose liberality and exertions find the sweetest reward in the consciousness of being stimulated solely by the desire of doing good.

The success of this and all similar institutions depends much upon the management, and upon the character of those under whose personal direction they are carried on. In this the committee appear to have been singularly fortunate, by the selection of Capt. Chandler as superintendent; at the time we visited the Island the boys, fiftysix in number, had been there only three weeks, yet the discipline and system appeared as regular as if they had been there three years, nor did this seem to have been produced by fear, the boys were as unembarrassed and as happy in the presence of Capt. Chandler as in his absence.

The Island consists of about one hundred and forty acres, and is remarkable for variety of soil sheltered and exposed spots, abundant sea weed for manure, in fact for nearly every requisite to render it, as intended, a perfect school farm and garden, where boys even of the tender age of seven might be initiated into, and confirmed in habits of agricultural industry, as well as acquire that knowledge which must render them orderly and happy members of society.

On their first arrival, of course they did not know the difference between the weed and useful vegetable; this they had already learned perfectly; a small spot was selected where each had the liberty to

square out his own little garden, unbiassed and untaught, to exercise his natural ingenuity and talent, and watch with expectant eye the sprouting and progress of the seed sown by his own little hand.

That Capt. Chandler is an intelligent and experienced agriculturist, is evident from the judicious manner in which the different advantages of soil and site are appropriated to different purposes, every plant appeared in vigorous and healthy vegetation; the various contrivances for feeding, watering, and managing the live stock were well adapted.

There is a small plantation of the *Morus multicaulis* for the silk worm, put down this spring; the plants are under successful propagation by laying and wiring at each joint, by which the stock will probably be tripled next year, so that at a future period this business may be carried on here to a considerable extent.

The domestic economy seemed under equal regularity and system, every place perfectly neat, clean and in order.

There are now only fiftysix boys, with ample convenience for two hundred, and we do not doubt that the liberality of the public will soon afford funds sufficient to fill up the number; whoever in his own mind compares the children, who swarm in the public streets, furtively laying their hands on all they can, and not unfrequently encouraged in the habits of pilfering by those who ought to train them in better ways, who are daily exposed to debasing and demoralizing scenes of inebriety and discord, with the children here educated in habits of industry and decency, here taught that knowledge which will enable them honestly to earn their living, here receiving those early impressions of steadiness and order, which will dispose them to impart the same to succeeding generations; whoever compares these two states, may easily persuade himself into a belief that it is a privilege and an enjoyment to bear a part in dispensing to our fellow creatures the advantages of the simple but moral and efficient education which this institution provides, and that it is a duty thus actively to exhibit our gratitude to the Great Author of all blessings for those which are kindly thrown into his own lot.

Those who assist either by annual subscription or donation towards extending these advantages to the number of children which this establishment is calculated to accommodate, may rest assured that the value of their gifts will not be diminished by want of proper management, but that every dollar will be made available to its utmost extent.

J. E. T.

OF ODOURS.

NOR less curious nor less difficult to reduce to any intelligible laws is the subject of Vegetable Odours. Our senses are daily gratified by the sweet perfumes exhaled by the leaves and flowers that surround us; and art exhausts its skill to preserve them by means which enable us always to have them present for our use; but as to the reasons why one kind of flower is odoriferous, and another scentless, we are still more in the dark than in what relates to color. Here, therefore, we shall confine ourselves very much to a mere statement of facts, introducing theory only in cases which may appear to be pretty well understood. For this purpose we avail ourselves of many of the materials collected by De Candolle in his invaluable *Vegetable Physiology*.

All odours are owing to the disengagement of volatile matter, and as there are few organized bodies in which, in their natural state, there is not some volatile constituent part, so neither are there any organic bodies absolutely destitute of smell. But it is only to cases in which the scent is very perceptible to our senses that we apply the idea of odoriferous, and it is consequently to those that we here confine ourselves; dividing them into *permanent*, *fugitive*, and *intermittent*.

Those odours are the most *permanent* in which the volatile matter is so enclosed in cells and concentrated as to disperse slowly. Of this many instances are afforded by wood and bark, which being in truth the only permanent parts of vegetation, will of necessity be the receptacle of durable odours; such parts are not scented, because of their own proper nature, for all the tissue of plants is originally scentless, or nearly so, but they owe their property to the fragrant secretions imprisoned in their cavities, and the permanence of their odour will be proportioned to the difficulty the volatile parts of their secretions experience in escaping through the tissue which incloses them, as well as to the degree in which the volatile matter may be fixed. Thus resinous woods, such as Cedar and Cypress, are fragrant for an indefinite period, because the resinous matter in which their odour resides is parted with slowly. Parts, whose scent resides in essential oil, preserve their scent for a long time, where the essential oil is but slightly volatile, or the wood is thick and hard: thus the Rose-wood of Teneriffe (not the Rose-wood of the English cabinet-makers,) produced by *Convolvulus scoparius*, preserves its odour a very long time;

and in order to elicit it, it is necessary to rub the wood strongly, so as to produce heat enough to volatilize the matter which is locked up in the very compact tissue of which that plant consists. The necessity of producing a little heat, in order to produce an exhalation of the volatile matter, is further exemplified by the fragrance emitted by many woods, otherwise scentless, when exposed to the violent friction of a turner's lathe: Beech is said to acquire, under such circumstances, the smell of Roses. But when, on the other hand, the volatile matter is enclosed in wood of a loose texture, neither is heat required to elicit it, nor has the wood, if exposed to the air, the power of retaining it for any considerable time, for the oxygen of the atmosphere will seize upon it rapidly, and quickly leave nothing behind but the inodorous tissue: this happens in Cassia and Cinnamon.

Fugitive smells are those which, belonging to perishable organs, are either extremely perishable in their very nature, or are placed in tissue of the laxest kind, or are situated on the surface of the plants where their volatile parts are continually abstracted by the atmosphere, or finally are secreted in quantities so small that a short exposure to air suffices to dissipate them. All these odours are produced only during the life of a plant; they are dispersed as they are formed, and after death leave no trace of their existence behind them. Like permanent odours these are continually given off, and in some plants, as the Orange and the Violet, without any variation in intensity in different states of the atmosphere; but in the majority of cases the power of smell will vary according to the elevation of temperature, and the dampness of the air. This fact must be familiar to all who are acquainted with gardens. In the hot, dry weather of a summer's noon, flowers either become scentless, or at least lose a large proportion of their usual fragrance; and in walking through a wilderness of the most sweet smelling plants, we find little sign of their odour, unless they are bruised or trampled upon. But if a heavy shower should come on, all will be changed in an hour's time; every leaf, every flower, will emit its peculiar odour; the Musk plant (*Mimulus moschatus*) will fill the air with its singular scent, and it will be obvious that the addition of moisture to the air has produced a total change in the action of the odoriferous organs of plants.

The same phenomenon is daily repeated in the driest days of autumn. Those only who are accustomed to take their early walks abroad can have any idea of the difference between a richly stored garden early in the morning and at noon. When the sun has dried

the air, and has been beating for some time upon vegetation, ill able to bear his action in consequence of the dryness of the source from which they draw their means of compensating for evaporation, however beautiful a garden may still remain, it cannot be compared to the same place before the dew has dispersed — when every herb, tree, and flower is pouring forth a stream of the most varied and delicious fragrance — when the air is impregnated with the most delicate balsamic odour — and when all nature seems as if offering up incense in gratitude for the refreshing powers of darkness and of dew. Let any one, for example, visit a thicket of *Cistus* at noon, and again the next morning, and the difference will be exceedingly apparent. To what cause this is owing is unknown; possibly the effect of dryness and excessive heat may be to close the stomates, and to contract the tissue of plants, thus rendering it difficult for volatile matter to pass through their cuticle: it may also act by depriving them of the necessary proportion of water required to enable them to perform their functions of secretion and assimilation, and thus arrest for a time the elaboration of the fugitive principles upon which fragrance depends. While, however, dew and showers, with intervals of bright light, are eminently favorable to the eliciting of vegetable perfumes, a continuance of wet and gloomy weather, without much sunshine, is as greatly unfavorable. This latter circumstance is explicable upon the general law of physiology, that secretions cannot be readily produced without the direct assistance of the sun's light.

Without regard to what we call *intermittent* odours, no explanation seems possible in the present state of our knowledge. A few examples of them will, therefore, be all that we can give. All dingy flowered plants, such as botanists call *tristes*, belonging to this class; such as the *Pelargonium triste*, *Hesperis tristis*, *Gladiolus tristis*, which are almost entirely scentless during the day, but become deliciously fragrant at night. Great numbers of Orchideous plants have flowers possessing the same property; the *Catasetums* have a fine aromatic odour at night, none in the day, except *C. purum*; *Cymbidium sinense* is also chiefly fragrant at night; and so with a great number more. *Cestrum nocturnum* is another plant of the same nature; in the day it has no odour, at night its perfume is extremely powerful. One of the most singular instances of exception to all rules appears to be referable to this class: *Cacalia septentrionalis* exhales an aromatic odour if exposed to the direct rays of the sun, and if anything is interposed between it and the sun its odour disappears, but is renewed as soon as the interference is removed.

Agreeable as vegetable odours usually are to our senses, there are some striking exceptions. Many *Stapelias*, the *Arum dracunculus*, and several other species of the same genus, whose flowers are of a deep livid color, have a smell so completely that of putrid meat, that flies actually deposit their eggs in them by mistake; *Arum trifidum* has an abominable stercoraceous odour; and the pollen of the Sweet Chesnut and the Barberry has a peculiarly disagreeable smell. Even the most delicate kinds of fragrance when concentrated prove disagreeable, and in many cases, in their simple state, act powerfully upon the nerves; even oil of Roses highly concentrated can scarcely be supported, and every one knows that a perfumer's shop although the receptacle of the sweetest essences, is by no means an agreeable place. The spasmodic affections produced by the odours of flowers are more common than is generally supposed, but vary in different individuals according to their respective powers of endurance. Some of the most remarkable cases are the following:—The Jonquil and the Tuberose are insupportable by persons of delicate nerves; few can bear the fragrance of the Lilac, especially in a room; even Violet, the last flowers to be suspected, have in many cases proved deleterious; De Candolle says he has witnessed many ladies faint from carrying too many of them on their persons, or from having placed them too near them when asleep. It is asserted that people have died from being shut up in a room in which the Oleander was in flower; hysterics have been brought on by the Musk Mallow; Saffron has been known to produce swooning; and the flowers of *Lobelia longiflora* have caused suffocation. The odours of other organs may also produce inconvenient consequences: the Elder, the Walnut, and the *Anagryis* bring on headache in persons who sleep beneath their shade; and the Manchineel tree is said to prove fatal to travellers who have trusted to its shelter.

Vague and unsatisfactory as all these details must be admitted to be, they are so connected with one of the most curious inquiries in either the vegetable or animal kingdom, that we think we cannot have done otherwise than render good services to our readers by letting them form a part of this treatise, especially as they are scarcely to be found adverted to in our English elementary works; and we close what relates to the physiology of plants, by strongly recommending the investigation of the subject to all those whose tastes, leisure, and attainments may lead them to occupy themselves with one of the richest fields of inquiry which yet remain in nature to be explored. — *Lib. of Useful Knowledge.*

ELECTRICITY AND CONDUCTORS.

ROXBURY, JULY 23, 1835.

MY DEAR SIR, — Among the various sciences and arts which it is indispensable should be understood by the cultivators of the soil, that of Electricity, and the means of being placed in security during the tremendous thunder storms, which so frequently pass over the country, are of peculiar interest to them ; for, from the many, often large, and the exposed position of the edifices, which constitute the farmer's and other rural establishments, they are constanly subject to most disastrous consequences, from the want of, or owing to, the imperfection of the lightning rods. I have, therefore, thought that a communication on those subjects, would not be out of place in a horticultural journal, and submit the following for publication, in that which has been so ably conducted under your coöperation, as one of the editors, and rendered valuable by the numerous interesting contributions which you have furnished.

Very respectfully, your most obedient servant,

H. A. S. DEARBORN.

J. E. TESCHEMACHER, Esq.

AN article has recently been published in several of the Boston papers, on lightning and conductors, which demands serious attention. Three instances are stated, in which edifices have been injured by lightning, although furnished with conductors, and the writer infers, that it was in consequence of the rods being *round*. He further states that silver points, glass fastenings, and surrounding the lower extremity of the rod with charcoal, “are of no use whatever,” and that such round rods do not afford sufficient protection, but “that square rods with the rough, numerous points, and sharp corners, most effectually protect a building.”

There is such a commixture of fact and conjecture, of error and truth, and of illustration and obscurity in his statements of the philosophical principles of electricity, and their practical utility, as well as in his solution of the causes of the injuries to the buildings which he examined, that it may be well to state, what is now considered among scientific men, as the true theory, and the most approved application of it, in the construction of electrical conductors, and the manner of erecting them.

1. Electricity is not only received and discharged by a metallic

point, more readily than by any other substance or form, but what is of greater importance, without an explosion.

2. The electrical fluid does not pass on the outside of the rod, merely, but through the whole mass of the metal, like heat.

3. Buildings are not always saved from destruction, in consequence of a flash of lightning being conducted into the earth by a rod; but whenever clouds, charged with electricity, are floating in the air, a constant stream of that fluid is silently passing down the rod, like water through a tube, and the threatening storm is thus invisibly and noiselessly disarmed of its terrors, by the ingenious and wonderful discovery of the illustrious Franklin.

4. Conductors should not only be of sufficient size, to transmit the largest flash of lightning without being melted, but to insure the free and uninterrupted passage of the electricity, and therefore the rod should be of one continuous piece, or so united, if in parts, as to render it in the nearest possible degree, as homogeneous and compact as a solid rod.

5. That the electricity may escape rapidly from the conductor, and without a shock, the lower end should be pointed as well as the top.

6. As metallic oxides, or rust, are nearly complete non-conductors, it is indispensable that the pointed ends of the rods should be protected from oxidation by being covered with gold or silver, so as to render them, at all times, perfect recipients and conductors of the electrical fluid. This precaution is a *sine qua non*, for no rod, not thus prepared can be relied upon for protection, against the fury of a thunder-storm.

7. The conducting power of metals, is in proportion to their purity or inoxidability, and have been ranked in the order of their perfection, as follows, viz. gold, silver, copper, platina, brass, iron, tin, lead.

For a conductor, copper is preferable to iron, as the material, being less liable to destruction by rust or fusion, and possessing also a greater conducting power.

The rod should be at least three fourths of an inch in diameter; and it is a most important condition in the structure, to give it the best protecting character — that no interruption should exist, in its continuity, from top to bottom. It may be formed of such round bars as are rolled down for ship-bolts. The pieces should be brazed together, or united by male and female screws, at the alternate ends,

at least an inch long, and in diameter, half that of the bars. The upper and lower ends to be pointed, in the form, and of the length of a musket bayonet, which must be plated with silver or gold, for some three or four inches at their extremities. Gilding is not sufficient, as it is liable to be removed or fused.

If iron rods are used, they should be united like those of copper, with similar formed points and plated in the same manner; but it would be better that three feet of the upper end of the conductor should be formed of copper; and as the lower end must be inserted in the earth, it should not be of iron, for it would in time become a mass of rust, save the plated point, and ultimately be separated from the portion of the rod above the ground, which would render the conductor not merely useless, but extremely dangerous. It would operate like a train of powder to a magazine, and receive the flash from a thunder-cloud, but to be expended in the midst of the edifice, in an explosion of devastation and death. It is therefore earnestly recommended, that all that portion of the rod which is buried in the earth, and for a foot at least above the surface, should be of copper. All the iron part of the rod should be covered with a lacker, which would best protect it from rusting, and for the longest time. The lead work, metallic gutters and spouts, and all masses of iron or other metal which are exposed, should be connected with the conductor, by lateral rods, or strips of sheet copper or tin.

9. As it has been ascertained that a conductor will not protect a greater portion of a building than a circle, whose radius is equal to twice the height of the rod above the roof, the more lofty the point the greater is the security. In other words, if the top of the conductor is ten feet above the ridge-pole, it will guard an area forty feet in diameter. On large dwelling-houses, barns, and public edifices, there should be two or more, and so arranged that their united heights will extend their influence beyond the bounds of the building; and when but one is used it should rise from the centre of the roof, and to an elevation so great, that twice its height above, will furnish the measure of a radius, sufficiently long, to describe a circle which will include the whole edifice. Notwithstanding this very important condition, in the erection of conductors, how very few rise sufficiently high, to protect even a quarter part of the building to which they are attached.

10. The rods should be isolated from the edifice several inches, by fastenings which are non-conductors. Glass articles for this

purpose have been manufactured, but if not easily obtained, the necks of bottles may be inserted in wooden supports as substitutes.

11. When the earth is dry, its conducting power is much diminished, and as silicious and argillaceous stones, which almost universally pervade the soil of New England, are non-conductors, in proportion to their hardness, while water is a good conductor of electricity, it is necessary that the lower end of the rod, should either be extended to a body of water, or sunk so deep in the ground as to be constantly in the midst of moisture, that the electricity may be rapidly diffused. At least six feet is required for this purpose, and the rod should be bent at such an angle, near the foundation of the edifice, as that the point will be seven or eight feet distant therefrom, in a horizontal line.

12. As an additional security, it has been recommended, by many distinguished European writers, on the construction and best mode of placing lightning rods, that an excavation be made some five or seven feet in depth and four or five in diameter, which is to be nearly filled with charcoal, as a receptacle for the lower end of the rod ; for charcoal being a conductor, insures the diffusion of the electrical fluid.

13. The nail rods which have been recommended, with their numerous points and rough edges, as well calculated to afford protection, is specious in theory, and may answer the purpose of conductors, for a short time, but when they become rusted at their extremities, which will speedily be the case, they will cease to receive and guide off the electricity, and become not only insufficient, but may be even fatal appendages to an edifice.

From numerous experiments made in England, France, Germany, Switzerland and Italy, and from the concurrent opinions of the most eminent authors, who have illustrated the science of electricity, there is no security in the midst of a thunder-storm, unless all the conditions which have been named, in the structure and placing a conductor are attended to in the most particular manner.

As a conductor should be as durable as the edifice to which it is attached, and at all times perfect in every part, the additional expense of a good and complete rod, of the best and most approved materials can be of no moment, when the disastrous consequences which may result from a cheap and inefficient one are considered. When made, let it be in the best manner, so as never to require repairs, or to be replaced, for an imperfect conductor is worse than none.

The causes which render most of the conductors, which have been put up in this country, either useless or dangerous to the buildings to which they are attached, are mainly the three following :

1. When the upper point of the rod is not protected by gold or silver, they soon become rusted, which renders them non-conductors, and consequently cannot receive the electrical fluid.

2. When the conductor is formed of pieces and are united, as is the common mode, by eyes or rings, at the ends, they either are not in contact, or become so rusted as to interrupt the passage of the electricity, and it leaps to some metallic substance in the vicinity, by which it is directed into the building, or it expends its force in some other injurious manner.

3. When the lower end of the conductor is not terminated by a point covered with gold or silver, but is of iron and blunt, the whole of that portion either becomes a mass of rust, or is so incrustated with it, that the fluid cannot escape into the earth, and it leaves the rod when fully charged, at the weakest place, or is guided off by some attracting medium, by which it is carried into the edifice, where it often divides, and produces disastrous, if not fatal consequences, from a double or triple explosion.

It was the second or third named defects in the conductors of Professor Palfrey's dwelling house in Cambridge, and of the meeting houses in Brighton and Braintree, which occasioned the damage to those edifices, on the thirteenth of June. In the last case, from the earth about the lower end of the conductor having been disturbed by the shock, it is evident that the cause of the explosion, was the third named defect in the rod ; and besides, it is probable that it did not extend sufficiently deep into the earth, or far enough from the foundation, so that the charge could leave the rod with facility, and without endangering the building.

EXTRACTS FROM FOREIGN PUBLICATIONS.

LOUDON'S GARDENER'S MAGAZINE, for JUNE, 1835, contains a continuation of the observations on gardening in Belgium.

An article doubting the results of the experiments of Macaire and others on the excretions of plants, which we like to see as promoting discussion on the subject, but the arguments in which appear to us easily answerable.

There are several other interesting notices and papers which our limits will not allow us to offer to our readers at present.

PAXTON'S HORTICULTURAL REGISTER, *conducted by James Maine; London.* The anticipation in our last number that this work would be ably conducted under its new editor, has been realised in its fullest extent. There is not a paper without considerable interest and information, part of which we convey to our readers with little more preface.

The first article is *On the Effects of Situation and Exposure on different kinds of Plants.*

Having ourselves prepared an article, *On the Climate of New England as adapted to Horticulture*, which we shall probably communicate to our readers at some future period, the subject under discussion has employed our thoughts and attention for some time past; and both our experience and reasoning correspond remarkably with those in the following extracts; it is almost needless to add that we think them of the greatest importance both to the farmer and the horticulturist.

“If we happen to be acquainted with the native *habitat* (place of growth) of a plant we can judge pretty accurately what place it is most likely to thrive in.

“Tropical plants we place in a stove or conservatory. Australian, Chinese, South African, and South European, in the greenhouse, those from the north of Asia, Europe, or America, anywhere in the open air; this is a natural way of proceeding, but not always right in its application; some tropical plants are killed by being placed in a stove, because it is not so much the latitude from whence they are brought, as the elevation of their native habitat above the level of the sea, which determines their hardiness. We often fail in preserving tender plants from inattention to local circumstances, we are liable to mistake shelter for warmth.

“Cold or rather cold air is always most intense in humid situations, because there is the most copious evaporation; such situations are either the tops of clayey hills, or the lowest valleys, where there is either a lake, river or brook. These low grounds are nearer the main springs, and often abound with them, from whence exhalations are ever rising though imperceptible; of course such a valley must be more chilly, and always more exposed to keen frosts than a drier or more elevated situation. Such glens provided they are open to the south are often chosen as the most suitable for tender exotics merely because they are sheltered from the northern blast. In the summer indeed such a lo-

cality is more favorable to the quick and strong growth of every plant ; the air being generally calm and moist, conduces to vigorous expansion, and the very coolness of a summer day or night as is felt in such places is most propitious to luxuriant vegetation. These circumstances instead of being favorable to tender exotics, have a directly contrary effect, the summer excitement only renders them less able to bear the frosts which fall upon them with redoubled intensity in the winter ; and instead of the slow and sturdy growth which would have happened to a plant on a dry and breezy hill or on a northern aspect, we have an enfeebled nursling unfit to bear the rigors of the climate from sheer mismanagement. These facts are important not altogether for the sake of naturalising exotic plants, but for fixing on the sites for gardens and orchards, which if misplaced at first, ever after give cause for regret.

“ Not only do the exhalations from a moist valley generate cold, but the cold air which descends upon the hills after sunset is said to *slide down and settle in the lowest place*. So firmly is this believed and acted upon by a well known horticultural philosopher, John Williams, Esq. of Pitmaston near Worcester, that when a garden is made on ground sloping to the south, that gentleman invariably advises the lowest boundary to be a hedge — or if a wall, that it be raised on grated arches high enough to allow the escape of the cold fleece of air accumulated within the garden. On the same principle whatever may be the aspect, the upper boundary wall should be high and close, to intercept the descending current and divert it round the ends.

“ There is another circumstance which operates on tender plants in sunny and sheltered valleys ; they are sooner affected by the returning warmth and solar beams of spring, and hurried into a premature growth long before frosts are over or the summer temperature confirmed.

“ The native plants of the frosty region of Siberia suffer greatly from the late frosts when introduced into British gardens, not from the severity of the season when compared with their own, but entirely from the changeableness of the former. In Siberia the winter sets in at once and the ground is soon covered with snow, every vegetable becomes instantly torpid, and in this state remains in perfect safety till the return of spring, or rather summer, for there is scarcely any spring in that northern clime, no intermission of mildness to excite, and frosts to destroy, the tender plants as is often experienced in this country.

“Mr Anderson, curator of the botanic garden at Chelsea, has in his collection of the genus *Iris*, several from Siberia which require peculiar management to see them in their beauty: as soon as a bright day in February warms the ground, forth come these humble gems of the north, and without some protection they would be withered by the first frosty night.

“Exposed situations on the north side of a hill on poor and dry, rather than on moist and rich soil are certainly the most eligible stations for making a trial of the constitution of a plant.”

[These remarks apply to *Morus multicaulis*, which is now under anxious cultivation as food of the silk worm. — ED.]

The second article is *Remarks on the different means employed for heating horticultural buildings by steam and hot water*. This is an interesting paper on a subject we propose to discourse largely on in our next, as we do not entertain a doubt but that very soon every building inhabited either by man or plants will be warmed on the system of hot water.

It does not require any sagacity to foretell a large profit to the first grate manufacturer who undertakes to heat houses by this means. The expense of fuel would not exceed one sixth of the ordinary consumption, while the whole dust and dirt of fires are avoided. Having practically examined almost every plan mentioned in the above paper we have no hesitation in stating this as our firm belief.

Article third is *On the cultivation of water cresses*. We have merely room to state our coincidence in the remarks that the sanatory virtues ascribed to this vegetable have long made it valued as a salad plant.

Article fourth is *On the practicability of improving Culinary Vegetables*. We cannot omit giving some extracts from this paper which is one of value to the farmer.

“The wild cabbage, carrot, parsnip and potato, are all plants of little value, but since their domestication by continued cultivation and the application of practical skill, &c. they have become of great importance as forming a considerable portion of the food of man.

“That the most of our new and superior varieties have originated accidentally is a well known fact, because it is only of late years that the doctrine of the hybridisation of plants has been so well understood, practically proved and explained. — This doctrine is now very generally known, already has it been of the greatest service to florists and orchardists, and even farmers are partaking of the benefit of cross impreg-

nation, by gaining superior sorts of corn and forage plants for cattle. Hence it naturally occurs to every one who considers what has already resulted from chance in our present improved stock of cultivated vegetables, why may not many of them be still further improved by manual assistance.

“It has just been announced in the Quarterly Journal of Agriculture that a new hybrid turnip has been raised by J. Wright, Esq. of Perthshire, and that a new variety of barley has been detected and cultivated for three years by the intelligent Mr Gorrie of Annat, in the same county.”

From an article *On the various form and character of Arbours as objects of use or ornament either in gardens or wild scenery*, we extract the following passages.

“A singularly beautiful structure which may be classed with this kind of garden decoration has been made in Ireland.

“A circular space of about sixty feet diameter, in the centre of dressed ground with scattered clumps of evergreen shrubs, surrounded by lofty trees, is wholly enclosed by a continued arcade of iron arches, each about five feet wide by ten feet high formed of 7-8 inch round iron wire. The arches are Saxon gothic, and from the top of each proceeds a slight copper wire to the summit of a pole in the centre of the circle about thirty feet in height, so that as now described the whole presents the appearance of a skeleton circular pavilion of arches covered by a tent like roof of the copper wire festoon. All the arches are thickly covered with climbing plants of strong rapid growth, which proceed along the wires to the top of the pole. Many of these are climbing roses, and the external appearance of the whole, covered with a profuse variety of luxuriant climbers interlacing and mingling their flowers and foliage is exceedingly imposing.

“The interior is an arbor of great magnitude, not so closely covered as everywhere absolutely to exclude the sun, but yet so as to render it always shady and agreeable. In the centre a cooling fountain, where a group of nymphs support the pole, sends forth four jets d'eau, which drop with delicious murmurs into a marble basin.

“The closely shaven turf comes about ten feet inside the arches where its edge is cut, and between that and the basin is covered with a fine tawny sand, with an apparently confused but really symmetrical arrangement of marble pedestals, seats and vases with flowering plants placed upon them. During summer a vase with a rare flowering plant is placed under each of the external arches except four which serve as

entrances. The entire effect is good, and this may be considered as one of the best specimens of the artificial bower of the present day."

G. T. Dale of Warkworth, Derbyshire, recommends for dahlias the following compound: strong loam, leaf soil, fresh turf soil, and river sand, one fourth of each, and on no account strong manure. When the flowering season is over, cover the roots with sand till you take them up on some fine day, carefully remove all earth from the roots and place them on dry shelves in sand secure from the frost.

The producing of a succession of roses is effected by a double course of pruning; thus, in autumn prune every shoot to five or six buds, and in May when these buds have made shoots an inch or more in length, prune away the upper shoots, the lower ones will push forward but produce flowers nearly a month later than those left unpruned; thus a succession is attained. J. E. T.

FOREIGN ITEMS.

At the meeting of the London Horticultural Society in May, a number of beautiful flowers were exhibited; among them a North American plant called the *Ladies' Slipper* (*Cypripedium*, the variety not mentioned); it is the most brilliant plant that has ever been brought to England.

Some remarks were made by Mr Lindley on the transportation of seed; it appears that seeds brought over land were rarely or never injured, while those brought by sea were very much deteriorated; seeds which had been sent to England over land from California by the late lamented Mr Douglas, were very productive, although they were three years on their passage; others sent by sea although only half this time on the voyage, turned out almost worthless.—*Eng. pa.*

The June meeting of the society took place in their garden on the fourth, two tents were erected under which were displayed the fruit and flowers; the number of the former was rather limited, but the exhibition of the flowers is described as having been extremely brilliant.

Three gold Banksian medals were adjudged to J. Willmot, for fine miscellaneous fruit. (Willmot's superb strawberry, is well known here.) To Messrs Rollison of Tooting, nurserymen for orchideous plants, and to Mrs Lawrence for miscellaneous flowers. Seven large silver and twenty Banksian silver medals were also adjudged —

among the successful competitors were two for fine Heartsease; two for Calceolarias; one for Cockscombs and Balsams; one for Pelargonium; one for *Cypripedium calceolus*; one for Roses; one for *Brugmansia arborea*, &c. &c.

We should be glad to give notices of the transactions of every Horticultural Society in the Union if we could obtain them.

A gentleman in Northampton, England, has tried the experiment of growing the oak by suspending an acorn in water in a hyacinth glass on the mantelpiece in his parlor, which was attended with complete success. It was placed there towards the end of November, the germ made its appearance in January, the stem is now nine inches in length and covered with leaves; the root is very curious, and the fibres numerous. Within the last few weeks the water which had hitherto retained its clearness, has become of a bright brown color; it forms a curious and at the same time a beautiful ornament.

J. E. T.

FARMERS' LIBRARY.

WE have on our table three volumes of the Farmers' Library,
Vol. I. *The New American Gardener*, 10th edition, by T. G. FESSENDEN.

Vol. II. *The New American Orchardist*, 2d edition, by WILLIAM KENRICK.

Vol. III. *The Complete Farmer*, 2d edition, by T. G. FESSENDEN.

It may appear superfluous for us to remark upon the labors of our assiduous co-editor, on which the demand for successive editions has already stamped the unequivocal impress of public approbation. We had rather leave this delicate task to the pen of the judicious Loudon, editor of the *London Gardener's Magazine*, who leads us to believe that he has condensed into his work the most valuable portions of the experience and labor of the practised agriculturist and gardener in Europe as well as of America. Those who expect novelty in works of pure fiction and imagination are often deceived, and those who expect it on a subject which has engaged the unwearied attention of a large portion of mankind since our first parent Adam, expect not wisely. On this, whoever is able, unfettered by the trammels of prejudice, to offer the fair results arrived at by those who have the necessary ex-

perience, offers that which is most conducive to utility — and we apprehend that every farmer who is ambitious of cultivating his land on the most approved principles will not fail to add these three volumes to his stock of books.

With respect to the second volume by Mr Kenrick, we may be expected to speak without bias, and our first observation is to quarrel with him for omitting the Tupelo tree in his list of ornamental trees. It grows plentifully in this neighborhood; near Cohasset there are some magnificent specimens: it is certainly one of the finest ornaments of the American forest.

We have bestowed some pains in comparing his list and descriptions of orchard fruits with the best authorities, and have no hesitation in pronouncing them correct, so that this work may always be referred to by the farmer with perfect confidence. The introduction, which contains remarks on the routine of cultivation, pruning, grafting, insects, &c. &c. is written in a remarkably clear and plain style exactly fitted for the work. We extract the section on modern or landscape gardening.

“In northern latitudes, the location of a garden should be, if practicable, on the south side of a hill. Or it may be screened on the cold quarters, either by hills, or by dense and deep borders of evergreen and other forest trees, intermixed with fruit trees and shrubs of ornament. An undulating surface is by all means to be preferred, and water should not be wanting.

“The art of *Modern Gardening*, is to form a landscape the most beautiful. Nature having drawn the outline, art must accomplish the rest. Art itself being subservient, or so far concealed, as that all may appear the work of nature alone. Wall and boundary fences should be demolished, or so far as possible concealed. The *ha-ha* is a concealed wall, constructed in the bottom of a dry ditch, and rising no higher than the surface of the earth. Straight lines and right lined walks are to be avoided; and in their stead devious lines only are adopted; — the serpentine, or the gentle waving lines, which bring continual and agreeable change. Striking and agreeable objects in the landscape, whether near or more remote, should be brought frequently, and sometimes suddenly into open view; while unpleasant objects, should from all conspicuous points, be masked from the sight, by shrubbery or by trees. To the hills an artificial elevation may be given by planting their summits with the stateliest trees. And depth is preserved to the valleys, by converting them to lawns. Views of water, it must not be forgotten, are essential to the perfect landscape.

“The first garden, of which we have any account on record, was planted by the Almighty, ‘Eastward in Eden,’ and in it, every tree that was pleasant to the eye, or useful for food. Out of Eden went a river, which watered the garden; and from thence it was parted into four heads. 1st. Pison, on the side of Havilah. 2d. Gihon, on the side of Ethiopia. 3d. Hiddekel, towards Assyria. 4th. The Euphrates.

“The modern style of gardening, in the place of the regular geometric forms, and the right angles, and right lines has substituted all that is more consistent with nature, and with beauty.”

Some considerable portion is devoted to the interesting subject of the Mulberry Plantations and the Silkworm, which are probably destined to become staple articles of produce in this country, on the soil and situation of which he observes:

“Although the mulberry flourishes most luxuriantly in a moist and rich soil, and protected situation, yet the leaves which are produced in such soils, are more crude, and not of a quality so nourishing. The growth of the tree, in such soils and exposition, besides being more rapid, is prolonged to a later period in autumn, or until the tender and yet vegetating tips of the twigs are suddenly arrested by the frost; the immature wood of a forced growth being more tender, is consequently more liable to be killed by early frosts and by winter. Such appears to have been the case in the winter of 1831-2, which destroyed so many full grown trees of the hardiest description, even to the root. The ravages of that destructive winter seem to have been confined to particular situations and soils; — to the productions of the forced growth of a summer not less uncommon and extraordinary.

“Authors seem fully agreed that the most suitable soils for the mulberry tree, are ‘dry, sandy or stony.’ And trees growing on ‘dry, sandy, or stony soils,’ and situated on the open plains, and on hills the most exposed to cold winds, will be found to suffer least from the destructive frosts of autumn and of winter.”

Mr Kenrick having raised a large quantity of the plants of *Morus multicaulis*, what he writes must be considered as good information on this point.

In conclusion we can safely recommend the whole work as fully entitled to its appellation, “The Farmers’ Library.”

J. E. T.

ON FLOWERS THE MORE GENERAL INTRODUCTION OF WHICH
INTO THE UNITED STATES WOULD BE DESIRABLE.

[Continued from our last.]

Bauera rubiæfolia, icosandria, trigynia, and *Baueræ*, so named in honor of the Messrs Bauer, celebrated botanical draughtsmen. A woody green-house plant; flowers of an extremely lively rose color, from New Holland, desirable for lasting in flower nearly all the year; it is rather hardy and cuttings will strike under a glass in sand but take five to seven months before they are fit to move into separate pots. An equal mixture of sandy loam and peat is the best for it. The pots should be well drained.

Lachenalia pendula, a bulb from the Cape of Good Hope.

L. tricolor is not uncommon here, but *L. pendula* we have never yet seen. The flower and plant is altogether larger than *tricolor*, color scarlet; it is the most showy of the tribe, blossoms early, say, March, April and May; like many of these bulbs it is best taken up when the leaves have withered, and re-potted in the autumn, in sandy peat with a little loam.

Lachenalia fragrans is also desirable but rather difficult to obtain.

Ixia, also a cape bulb. Almost all the *Ixia* tribe are beautiful. We have seen many here, but not *I. viridiflora*, which is most elegant when well grown. The color is one very uncommon among flowers, a bright bluish decided green, with a dark eye. To the same tribe belong those delightful plants, *Sparaxis*, *Watsonia*, *Pater-sonia*, *Streptanthera*, and many others. *Streptanthera elegans* is particularly beautiful and deserves room in every green-house.

Buddlea globosa was formerly a green-house plant in England, but now endures the winter in the open air. The branches are however sometimes killed down in severe winters; it would therefore be more proper for the green-house in this country.

The foliage is elegantly veined, the upper side of the leaves being bright green, the underside white. Flowers in dense globular clusters of a bright orange which contrast beautifully with the varied color of the leaves.

Chironia, fructicosa and angustifolia, from the Cape of Good Hope — of the same tribe as the *Gentian*. The flowers are of a bright rose color and the petals a fine polished surface; an elegant peculiarity of this flower is the spirally twisted, yellow anther. These plants flower early, and are very lively inmates of the green-house. They require rather dry and airy treatment, and are

apt to rot if overwatered. Cuttings strike in sand, and if the plant is kept tolerably dry, the seed will ripen, and should be sown immediately in light sandy earth.

Crowea saligna, decandria, monogynia and rutacæ, the family of the Rue — named after James Crowea an excellent English botanist. There are only two varieties, *C. saligna*, and *C. latifolia*, both from New Holland. They are very beautiful woody plants; the flowers rather large, spreading, of a fine pink color; the branches are slender, the foliage elegant; altogether they are exceedingly ornamental to the green-house. Cuttings are rather difficult to strike and sometimes require twelve months before they send out roots, the foliage remaining all the time green and lively. Like most woody plants they should be struck in sand with a glass cover, the best soil for them afterwards is sandy loam and peat — they require plenty of air and do not thrive if too much crowded among other plants.

Witsenia corymbosa, one of the Iris tribe (*Iridææ*); of a most charming azure blue. It flowers during the winter season and its lovely corymbs form a fine contrast to the yellow which abounds in the conservatory at this time; it is rather difficult to propagate and therefore keeps up a high price in Europe; 5s. to 7s. 6d. being the value of a good plant; but it is worth all that is asked for it.

Nerine sarniensis. The Guernsey lily, a bulb bearing a cluster of flowers in the autumn prior to the appearance of the leaves. Large quantities of these are annually imported into England from Guernsey. It is said they only blossom once in three years. Those imported however always have blooms. As the flower only appears in the autumn, the leaves which shoot out afterwards do not attain sufficient perfection to nourish the bulb for flowering the succeeding year, it is therefore only after one or two seasons engaged in ripening the leaves that the bulb attains sufficient strength to throw up a spike, which is however, extremely beautiful. Sandy peat is the proper soil.

Canna iridæflora. This magnificent plant was raised by B. A. Lambert, Esq., from seeds found in the celebrated Peruvian Herbarium of Ruiz and Pavon, which was purchased by him at a princely price.

The flowers are large, in thick nodding clusters, and of a bright hyacinthine purple; the plant is of a stately growth, the cultivation not difficult, being the same as of other Cannæ; it is a splendid ornament to the conservatory, and not very difficult to be obtained.

HARDY.

Orobus vernus, *leguminosæ*, and *diadelphia decandria*, the spring bitter vetch. Very early flowering, flowers large, handsome, singular in the different shades of colors, the upper part of the large petal (*Vexillum*) is purple with blood red veins, the wings are blue, the keel blue, tinged with green, the color changes as the flower advances, which becomes finally altogether blue. *O. formosus* is also beautiful, a native of Mount Caucasus; flowers large, fine purple. *O. Fischeri* is another handsome purple species. I sowed seeds of this latter, but not one has yet vegetated. *O. tuberosus*, a native of England is also of a fine species, remarkable for its tuberous root, which the Scotch Highlanders chew when dried to give a good flavor to their whiskey; they also assert that by the use of them they are enabled to bear hunger and thirst for a longer time without suffering. In Holland and Flanders they are dried, roasted and served at table like chesnuts. In England the plant is called the *Wood Pea* or *Heath Pea*. Several other species are well deserving notice, they are easily propagated by dividing at the root or by seed. A sandy soil suits them best.

Primula farinosa, an elegant and rare plant, native of swamps in England; the flower though lively is small, but the under side of the foliage is covered with a white powder resembling flour, which has a beautiful appearance.

J. E. T.

MISCELLANEOUS ARTICLES.

COLLECTED BY T. G. F.

HARD WATER FOR IRRIGATION.—In Parke's Chemical Essays, page 9, it is asserted, that according to Dr Home, "hard water promotes the growth of plants in a much greater degree than soft water." Sir John Sinclair observes, "In regard to waters much impregnated with iron, they were supposed totally unfit for the purposes of irrigation; but it is now fully proved, by the accurate experiments of an able chemist, and by the extraordinary growth of grasses in Prisley meadow in Bedfordshire that ferruginous waters are friendly to vegetation, when properly applied." We believe that many if not the greater part of what we call *hard* waters in this country are rendered

unfit for washing by being impregnated with gypsum, [plaster of Paris] and are the more fit for irrigation from the very circumstance which causes them to be improper for bleaching, the use of the dyer, and for culinary purposes.

NEW METHOD OF MAKING JELLY.—Press the juice from the fruit ; add the proper proportion of sugar, and stir the juice and sugar till the sugar is completely melted : put it into jars, and in twentyfour hours it will become of a proper consistency. By this means, the trouble of boiling is avoided, and the jelly retains more completely the flavor of the fruit. Care should be taken to stir the mixture till it is completely melted, and fine sugar should be used.—*New Jersey Advocate.*

PRESERVATION OF APPLES.—Apples may be kept all the year round by being immersed in corn [grain] which receives no injury from the contact. If the American apples were placed among grain, they would arrive here in much finer condition. In Portugal, it is customary to have a small ledge in every apartment (immediately under the cornice) barely wide enough to hold an apple ; in this way the ceilings are fringed with fruits, which are not easily got at without a ladder, while one glance of the eye serves to show if any depredations have been committed.—*Brandé's Quar. Jour.*

A GARDEN, under a proper system, is a most valuable acquisition to a farmer, with a view both to comfort and economy. Many culinary articles may be obtained from a well cultivated and sheltered garden, which cannot be raised in the field, or will not grow in exposed situations, with equal luxuriance and perfection. Attention should be paid to the sowing of different articles at various seasons, by which an earlier and a more equal, as well as a more regular supply for the table may be obtained. It is of no use to employ a piece of ground in a garden for raising cabbages, Swedish turnips and other plants, to be afterwards transplanted into the fields. The refuse of the garden may be given to advantage to pigs and milch cows. At the same time, working in the garden should always be considered of inferior consideration to the business of the farm ; and on no account ought the farmer's attention to be drawn off from his crops of grain and grass.

GARDENER'S WORK FOR AUGUST.

Turnips. The first week of this month will answer very well for sowing turnips for autumn and winter use either in the garden or the field. M'Mahon says "you may continue in the middle states to sow turnips as opportunity offers, or as the season proves favorable till the middle of the month, after which it will be too late to expect tolerable produce. In the eastern states the last sowing ought to be performed in the first week of this month, and the earlier in that the better. If any be sown after the above periods, it ought to be the early Dutch kind; this will arrive at maturity at an earlier period than any other sort." For directions see Horticultural Register for July, pp. 277, 278. Pull up the haulm of peas, beans, &c. and remove it to your compost bed, bury it between rows of plants, or throw it together with all weeds, &c. and thus give a neat appearance to your premises. Cut such herbs as are now in flower, to distil or to dry for winter use, being careful to do it when dry, and to spread them in a dry place in the shade; for if they are dried in the sun they will shrink, turn black and prove of but little value. Do not permit the seeds of weeds to ripen on any part of your premises, particularly your dung-hills and carrot beds, for if the seeds are permitted to ripen and fall, the dung when carried into the garden will disseminate innumerable weeds. Attend to plants set out for seeds, and when necessary support them by stakes. Continue to earth up advancing crops of celery, once in twelve or fourteen days, taking a dry day for the operation. Break the earth fine with a spade before it is drawn up to the plants, and take care to gather up the leaves, neatly and not to bury the hearts of the plants. In the fore part of the month you may sow succession crops of peas. Mr Armstrong observed, "after the earth takes a temperature favorable to vegetation, your pea sowings should be made once a fortnight, till the middle of August to keep up a regular and successive supply." For sowing in August, M'Mahon recommends the Early Frame, Golden, or Charlton hot spur peas, which, should the season prove favorable, will afford tolerable crops in September. In order to prevent mildew in peas Mr Knight recommends to "give water profusely once a week or nine days even if the weather proves showery." Keep your melon and cucumber vines properly clear of weeds, and you will thus encourage the growth and improve the flavor of the fruit. Some English gardeners advise to place a flat tile or

slate under each melon to prevent it from the dampness of the earth. The substance thus interposed will assist, it is said, the fruit to ripen, by reflecting the sun's rays. Whether a bed of tile or slate would prove too warm for the melon in our climate, we cannot say. Perhaps shingles or boards would be preferable, as they would not be rendered so hot by the noon day sun, nor so cold by the night air. At any time before the middle of the month you may plant a crop of early dwarf kidney beans; should the ground and weather be dry at the time, the drills or hills should be watered, and the beans soaked in soft water four or five hours before planting. Continue to collect and preserve seeds as directed last month.

FRUIT GARDEN AND ORCHARD. Preserve peach, plum, cherry and apricot stones, &c. to sow for raising stocks to graft on. These may either be sown immediately, or kept in common garden earth or moist sand. But it is necessary to sow them before the stones open, and the radicles begin to shoot; otherwise many of them will be broken or torn in the process of sowing. Every day they are kept out of ground is an injury to them; and if they remain in a dry state till spring very few will vegetate till a year after, and the greater number not at all. Attend to new budded trees. Look over the stocks which were budded in July, and, in three weeks, or at most a month after their being worked, loosen the bandages, lest the buds should be pinched; and where there are any shoots produced below the buds they should be rubbed off. Examine also the trees which were budded the year preceding, or grafted in the spring, and cut off all the shoots that are produced beneath the inoculations or grafts, lest they starve the grafted shoots. Such of your fruit trees as are heavily laden with fruit should be supported with substantial stakes, to which the pending branches should be bound with strong hay-bands, or some other soft ligaments.

Vineyard. Train up and tie to the poles such vines as would otherwise trail on the ground, and keep the ground free from weeds. Divest the main shoots of all young side productions, but be careful not to injure the leaves.

Nursery. In dry weather give frequent waterings to seedling trees, shrubs and plants, and keep the ground loose and free from weeds. The general directions for last month will apply to this. See pages 279, 280.

WORK IN THE FLOWER GARDEN FOR JULY.

THE following, accidentally omitted in our last, we insert here, in order to make the season's work complete.

Cut off the flower stems of annuals and perennials soon after they have passed their day of perfection. This will encourage the plant to send up fresh spikes of flowers for the autumn, and be quite equivalent to a succession crop and keep the garden gay until the frost; those who intend to save seed should tie up their choice flowers for this purpose, and take the first that is ripe. That which ripens late is more liable to mildew, and the juices of the seed are not so concentrated.

Balsams, cockscombs, and other tender annuals, should now be repotted for the last time, and when required of extraordinary size should be kept moist, occasionally have liquid manure, and always as much heat as can be conveniently given, the Balsam will thrive better for this assistance.

The latter end of the month sow a few *Schizanthus*, to take into the house on the approach of frost. Some other annuals may be treated in the same manner.

The Dahlias will now require considerable attention and address, in tying up, to protect them from being broken by high winds.

About the middle and latter end of the month, commence laying carnations, and piping pinks, also make cuttings of all plants as soon as they have done flowering. Lay the summer shoots of ornamental plants, as magnolia, rhododendron, kalmia; observing that it is better in performing this operation, to cut the shoot half through on the upper side, and give it a twist when pegging it down in the earth, so that the wound may granulate and throw out roots. There is less risk of its breaking off than in the old way of cutting on the under surface.

Choice tulips, and other bulbs of which the leaves have turned brown, and which require to be kept in the house, may now be taken up; the stems of Crown Imperial, and such as are destined to remain in the ground all winter, should be cut off, and labels placed to mark the spot. Their places may be filled up with China aster, or other autumnal annuals whose roots do not go deep into the earth. These in addition to their beauty will perform the service of concealing the labels, which, in their most unobtrusive form always sin against taste.

WORK IN THE FLOWER GARDEN FOR AUGUST.

THE principal work is to keep the garden neat and free from weeds ; cut off the seed stalks of flowers both perennial and annual as the blossoms fade, this will probably give a second crop of flowers late in the autumn, if the absence of frost permit. Take up all bulbs of which the leaves have withered, place marks to all deciduous flowers before the stems totally disappear, that you may know where they are when the beds are dressed in the ensuing spring, for this we cannot recommend anything cheaper or more durable than the new zinc tally.

This is the principal month for budding roses. Always bud on the northeast side of the stock, that the powerful rays of the sun may not scorch the bud before it has taken root ; a preferable bandage to bass is narrow tape dipped in a melted mixture of pitch and beeswax, this will stick without tying and protect the place from wet.

MASSACHUSETTS HORTICULTURAL SOCIETY.

AN adjourned meeting of the Society was held at their hall on Saturday, 25th inst. The President, Hon. E. Vose in the chair. The report of the Committee appointed to consider the subject of the approaching anniversary was read and accepted.

In pursuance with the report, a committee of three were chosen to invite some gentleman of science to deliver an address on the occasion of the anniversary.

On motion of Mr French, a general committee of arrangements was chosen ; which committee consists of the following gentlemen : Messrs. G. W. Pratt, Cheever Newhall, B. V. French, Joseph P. Bradley, M. P. Wilder, J. E. Teschemacher, Samuel Walker, C. M. Hovey, Geo. C. Barrett, E. Weston, Jr.

Voted, On motion of Mr French, that the committees on Fruits and Flowers superintend their respective departments under the direction of the general committee of arrangements.

The society then adjourned to meet this day two weeks at eleven o'clock, A. M.

Saturday, July 25.



Fruticosa v. lithospermum Benth.

Podanthes serrata.

THE
HORTICULTURAL REGISTER

AND
GARDENER'S MAGAZINE.

SEPTEMBER 1, 1835.

STAPELIA IRRORATA OF MASSON.

PODANTHES IRRORATA of *Haworth.*

HAVING observed several varieties of the very curious family of *Stapelia*, in the private collections of green-house plants in the vicinity of Boston, we judge that a figure of one of the species, with some account of the general properties and method of cultivation of the tribe, would not be unacceptable to our readers.

The figure on the opposite side, will show that they are by no means devoid of beauty, and there are many still more handsome than this. The leaf, or stem,—for it seems to partake of the nature of both,—is angular, toothed; fleshy, or succulent, as it is termed, and about the thickness of the finger. One of the most singular properties of this tribe, is the unpleasant odor the flowers exhale. This variety is not so offensive as some, but in several, it so strongly resembles putrid meat, that we have frequently seen flies deposit their larva on the full blown flower, imagining that there would be food for the young maggot as soon as it appeared.

For what purposes this plant was so gifted, we neither know, nor can we now surmise, although deeply impressed with that belief which is the foundation of all science, that nothing was ever formed in vain. Their grotesque stems, which vary considerably in different species, their curious structure, the beauty of many of the flowers, and the little trouble and care required for their cultivation and propagation, have, notwithstanding this drawback, rendered them rather favorites in the green-house.

To propagate them, a piece should be cut off the stem and laid in

the hot sun for a week or ten days, until shrivelled and dry. It should then be planted in sand, and kept rather moist; in six weeks, or two months, if the sun is warm it will have taken root, and may be potted off. The most congenial soil, appears to be old brick and mortar rubbish mixed with sand, and a little earth. The pots should be well drained.

The routine culture is as follows:—They generally flower in the early spring; previous to this, they should be watered frequently; after their flowering time is over, they should be placed on the hottest shelf near the glass all the summer, and there remain unheeded and unwatered until their time comes round again. To keep them near the glass that they may have all the light possible, and dry during the hot months is the general rule; to this there are perhaps a few exceptions. Such (and they are but few) as have been discovered in shady and moist situations, may like rather more water, and many will blossom rather more freely for watering much, but the result is, that they are apt to rot from being rendered too succulent.

This treatment is, of course, founded on their manner of growth, in their native sandy deserts; where, during the excessive heat of a vertical sun, they become shrivelled almost to the size of a straw, but no sooner does the refreshing deluge of the rainy season pour down, than they swell up, and push forth their curious stems and flowers, tainting the air with their odor. It is of the family of *Asclepiadæ* to which the milkweed belongs, and the silken seed with its pod, very much resembles that of the *asclepias*.

The Prince of Salm Dyk, in Germany, and a gentleman of the name of Christie near London, have, we believe, the finest collections known, of these and other succulent plants. The celebrated Haworth who is just dead, had also a fine collection which is now dispersed. He remodelled the tribe, and although some objections were at first made, his nomenclature has been generally adopted. There is a late German work on this plant, which we have been as yet unable to procure. We have seen about eighty varieties of *stapelia*, and cultivated above thirty; the flowers of most of which are in the herbarium.

Francis Masson, a naturalist, who resided ten years at the Cape of Good Hope, and devoted himself among other studies, to botany, published a splendid work in folio on the *stapelia*, containing fortyone large plates beautifully engraved, with a botanical description of each. From this work we make the following extract:

“The tract of land which forms the Cape of Good Hope, widens gradually as it recedes from the sea. The western coast consists of extensive sandy deserts, incapable of cultivation, and the interior part exhibits ridges of high mountains; between them are other deserts, the soil of which is a reddish earth, intermixed with rotten schistus, impregnated with salt. These deserts called Karro, are furnished with great variety of succulent plants, endowed by nature, as the camel is, with the power of retaining within them, water sufficient to enable them to survive the long periods of drought which prevail in those regions. The climate differs very much from that near the Cape, where the vegetable productions approach more to the nature of Alpine plants. This tract of country has afforded more riches for the naturalist, than perhaps any other part of the globe. When the first Europeans settled there, the whole might have been compared to a great park, furnished with a wonderful variety of animals, such as the elephant, the rhinoceros, the hippopotamus, the camelopardalis, numerous species of the genus antelope, the lion, panther, hyæna, and many other ferocious animals; but since the country has been inhabited by Europeans, most of these have been destroyed or driven away. The ornithology of the Cape is very interesting; incredible numbers of strange sorts of birds, quite unknown to the inhabitants, often migrate from the interior country, and visit the European settlement. The vegetable kingdom seems almost inexhaustible, and most of the genera at the Cape are peculiar to the southern parts of Africa. The varieties of climates and local situation afforded by the nature of the country, produce such a diversity of species, that the age of man would scarce be sufficient to complete a Flora of it, accompanied with exact figures and scientific descriptions. The Dutch, although celebrated as lovers of Natural History and Botany, had possessed the Cape near 130 years before any considerable number of plants from thence were introduced into their European gardens, a few geraniums and succulent plants excepted. Even the zoology of this interesting spot seems to have been but very little studied by them.”

What a singular sensation would be created in the breast of the naturalist of the present day, were such a park of animals, a garden of such grotesque plants to be first discovered at the present day!

J. E. T.

[For the Horticultural Register.]

NEW FRUITS AND ORNAMENTAL PLANTS.

DEAR SIR,—It is most cheering to the practical horticulturist, that they have such repeated causes of gratulation. Our public journals are constantly announcing some discovery or improvement in rural economy, or the reception of rare species of exotic plants. The catalogue of Pears, published in the last *New England Farmer*, presents a most valuable addition, to our variety of fruits, for which we are indebted to Mr Manning of Salem and Mr Kenrick of Newton.

Soon after the organization of the Massachusetts Horticultural Society, measures were taken to obtain trees or scions of the best kinds of fruits, as well as plants and seeds of ornamental trees, shrubs, flowers, and culinary vegetables, from England, France, the Netherlands, Italy, and other parts of Europe, and of Asia, South America, and the United States. In the prosecution of that labor, communications were sent to the officers of numerous horticultural societies, eminent nursery men, and gentlemen who had become distinguished for their attention to the cultivation of the useful, interesting and beautiful products of the vegetable kingdom, requesting a reciprocation of such as were to be found in their several countries, for those which were indigenous to this. The acquisitions which were thus made have been vastly more considerable, than the most sanguine could have anticipated; and the beneficial effect, is not only apparent in our market, the weekly exhibitions of fruits, flowers and vegetables, at the rooms of the Horticultural Society, but in the improved appearance of the gardens which embellish the scenery of the surrounding country.

The credit of this favorable and rapid change, in the extent and variety of useful and picturesque tillage, is not by any means exclusively to be attributed to the vigorous efforts of the Society; but much, very much of it is due to the enterprise, liberality, intelligence and zeal of private individuals, who opened a correspondence with celebrated proprietors of choice collections, amateur cultivators, or the munificent patrons of horticulture.

Among the first to enter this honorable career, and who have thus richly merited the gratitude of their countrymen, were the Hon. JOHN LOWELL, SAMUEL G. PERKINS, Esq. Col. THOMAS H. PERKINS, EBENEZER PREBLE, and JOHN PRINCE, Esqrs., and they have more recently had as emulous co-laborers, Mr MANNING and Mr KENRICK,—

especially in the department of fruits. By an interchange of our native varieties, and other efficient measures, they have succeeded in presenting a list of nearly one hundred and sixty varieties of Pears which are now being cultivated, and will in a few years, be disseminated throughout the Union.

To Dr Knight, long the enlightened and indefatigable President of the London Horticultural Society, and forever illustrious, by his invaluable services to that glorious institution, and as the fortunate creator of many new varieties of pears, apples, cherries, and strawberries, are we under the greatest obligations. Although frequent have been the acknowledgements which have been expressed, by his high minded and intelligent correspondent, the Hon. John Lowell, both as President of the Agricultural Society, and as a private gentleman, and by many other citizens and societies, for the numerous rich presents which have been made by him, and the noble institution over which he presides; still, each succeeding generation will owe to him, and the London Society, as well as to those who have been the liberal dispensers of their bounties, a debt for inestimable favors, whose appreciated value will constantly increase with the enlargement of the circle they are destined to bless; for those donations are of such a peculiar character, that differing from all others, they are multiplied in value by division, and elevated in consequence by their extended distribution; and this too by a process which is infinite in its operations and effects.

The venerable Van Mons of Louvain, has devoted a long life to the cultivation of fruit trees, and has acquired a great and well merited celebrity, from having discovered one of nature's most recondite secrets, in the wonderful manner of certainly producing improved and often very superior varieties from the seed. He is now over seventy years of age, but still in the full vigor of his capacious mind, and physical powers. This worthy patriarch of horticulture is not more distinguished by his successful efforts in multiplying the number of choice fruits, than for his medical erudition, and general scientific attainments. As a professor of chemistry in the university of Belgium, as an author of several works on the natural sciences, and a splendid treatise illustrated with plates, on the Pomology of his native country, his reputation has become co-extensive with the bounds of civilization. The ardor which he still evinces, in the prosecution of his experiments for increasing the number and variety of plants in his spacious seminaries, may be well emulated by the

youthful aspirant for distinction, in the wide expanding field of horticulture. Not many months since, I saw a letter from this beneficent, honored and good old man, in which he stated, that notwithstanding his numerous scientific and literary avocations, he was enabled at times to escape to his arboretum, and watch the labors of his assistants who were then engaged in grafting thirty thousand seedling pear-stocks.

Until the discoveries of Knight and Van Mons, the addition of a new variety of any of the kinds of fruit, which have been cultivated, since the epoch when the Roman empire was at the culminating point of its glory, was of extremely rare occurrence. To the varieties of apples, pears, peaches, plums, cherries, grapes and strawberries, which were cultivated in the most extensive gardens and orchards of Europe there had been but very few acquisitions for centuries. Now and then an accidental seedling became notorious, and was tardily distributed, while many of the most delicious and celebrated species, were year after year becoming extinct, from some cause, which has not as yet been satisfactorily explained. To supply the place of the latter, and increase, if possible, our catalogue of superior fruits, claimed the serious and devoted attention of Van Mons and Knight, and they pursued their variant modes, with that ardor and perseverance which can alone secure success, in any branch of science or art.

The hybrid process of Knight, has been crowned with honorable results, while his ingenious theory, has been rapidly extended in the floral department, and its triumphs are exhibited in the astonishing varieties of superb roses, camellias, rhododendrons, azalias and numerous other flowering shrubs and herbaceous plants, which now embellish the conservatories and rural plantations of Europe and this country.

Until the hybrid process was introduced by Knight, it was not known to have been practised, at any period or in any country, although artificial impregnation had been very limitedly resorted to, in a few instances, when the stamens and pistils were either borne on different trees, or in separate blossoms on the same plant; but this was done merely for the purpose of aiding the mysterious process of fructification, and not to obtain a new variety. I have no recollection of even this limited application of the theory, except in Tripoli, upon the date tree,—whose female blossoms are produced on trees fifty or sixty feet high, while the males grow on those, whose height

is not over twenty,—and occasionally among gardeners, on the vines of melons and cucumbers, whose stamens and pistils are in different corollas on the same plant.

Two attempts were made by the Massachusetts Horticultural Society, to obtain from Professor Van Mons, scions of some of his most valuable varieties of Pears, which utterly failed, although every possible precaution was taken, on his part, to render their transmission safe and sure. In the first instance, he sent fiftytwo kinds, which, owing to their detention between Paris and Boston, did not reach their destination, until after midsummer, and had, consequently, become a mere bundle of dried twigs. Again he was written to, and such means taken to guarantee their arrival, in good condition for engrafting, that a confidence was entertained of their reception. With a prompt and generous disposition, to comply with the request, another package of scions, containing one hundred and twenty kinds was forwarded to Havre, with a kind and interesting letter, descriptive of their character, and expressive of the anxious desire, by which he was actuated, to subserve the interests of horticulture, in the United States. The letter was received, but the scions most unfortunately, were never more heard of, after their reception at Havre.

Mr Manning and Mr Kenrick then addressed Mr Van Mons, and as private individuals, solicited renewed attempts in their favor; but it was not until after three efforts, that they at last have been enabled to publish the list which has been named, of such as have been successfully transplanted to our soil, and are actually growing in the nurseries of those gentlemen.

This perseverance has been only equalled, by that of the honored creator of those precious additions to our pomological catalogue, while his liberality and untiring disposition to confer favors, upon the citizens of this far distant country, are deserving of all praise, and of our warmest gratitude.

Mr Manning and Mr Kenrick are among those rare instances of self-elevation, and who from their private, individual, unaided and unobtrusive efforts, determined to accomplish honorable purposes, not for the sake of distinction, but to gratify a natural taste in the prosecution of inquiries, and in developing facts in that sphere of intelligence, which they have so largely contributed to illustrate. There are but few individuals who have made such unwearied and successful exertions as Mr Manning, to become acquainted with the history, character, identity and mode of cultivating all the kinds of fruit,

which will brave the rigors of our climate. There is scarcely an English or French work on fruit trees, which he has not thoroughly examined; and by collecting trees or scions from all parts of the globe, for cultivation on his own grounds, he has been enabled to understand their characteristic distinctions, and to recognise such fruits as are constantly being presented to him, as one of the able committee in that department of the Horticultural Society, with a readiness and precision which is truly astonishing. This passion for the acquisition of all the existing varieties in every country, has a more laudable object than mere selfish gratification; for with these liberal views, which ever characterize the truly sincere and devoted disciples of intelligence, he is as much pleased to disseminate among his fellow citizens, samples of his invaluable collection, as in the fruition of his highly interesting, useful and most honorable labors.

It was most fortunate indeed for the Horticultural Society, and the whole community, that just at the moment of its creation, such an ardent, active, and successful adventurer, as Mr Manning, should have entered upon his career, in that branch of cultivation, the advancement of which, was one of the chief objects of that institution, and which is so important to the whole country. If there is any cause for regret in his character or conduct, it is in that extreme modesty, which, from a peculiar delicacy of temperament, restrains him from making public, the valuable results of his extensive experiments. His true worth is, therefore, only known to those, who have the pleasure of his acquaintance, or have been directly benefitted by his generosity. His actions are conspicuous within the circle of his immediate usefulness, but it is left for time to herald his reputation.

Mr Kenrick is extensively known, from his indefatigable exertions to elevate the character of the nurseries of New England, and as one of the pioneers in that pleasing and important branch of cultivation. Before his establishment in Newton was commenced, there was not a collection of fruit, forest and ornamental trees, shrubs and flowers, which was worthy of the age or country, northeast of the Hudson; but now he has the Winships of Brighton, and other meritorious rivals, all of whom appear determined to place such establishments, on a level with those of a similar character, which are so renowned in England, France and Holland. They cannot increase their variety and number of plants too rapidly,—for a taste and a spirit have been aroused, for the comforts and luxuries of useful and ornamental cultivation, which will more than keep pace with all their

industry, and increase the demand for their products, to an unprecedented extent.

Besides, Mr Kenrick has rendered himself conspicuous as an author. His *New American Orchardist*, is decidedly the best treatise on fruit trees, which has appeared in this country. It combines a description of a greater number, with more precise accounts of their history, character, and mode of culture, than any which had preceded it,—especially the second improved edition. The added chapters, on the culture of the mulberry and silk, are of especial value, at this time, when the importance of that branch of national industry has so recently become a subject of the deepest solicitude and attention, throughout all parts of the Union. The facts he adduces in support of the practicability of rearing several successive crops in the same season of vegetation, are of a truly encouraging import, to those who have commenced their plantation of mulberry trees, and the establishment of cocooneries, or manufactories, with the view of prosecuting either one or all of these departments of labor, which are destined to rival those of cotton and wool, at no very distant period.

It is well known, how recently these two great staples were brought into consequence, and now each of them constitute an amount of product, greater than were the whole exports of the United States thirty years since. Our cotton crop, for the last year, exceeded one million two hundred thousand bales, which have been sold for at least seventy dollars per bale, yielding the enormous sum of thirtyfour millions of dollars; and the wool crop for this year has been estimated at more than seventyfive millions of pounds.

Silk in its numerous manufactured forms, annually imported from Hindoostan, China and Europe, and actually consumed in the United States, has rapidly increased, and now must amount to over twelve millions of dollars. There being no part of the globe where there is one quarter part as much silk worn, in proportion to the number of inhabitants, as in this country, it may readily be conceived how great will be the demand, at the next duplication of the people from the last census,—which will be but twenty years from this time. And as the ratio of consumption, of all native and foreign products, has increased in the United States, for the last thirty years, much more rapidly than that of population, it may be confidently assumed that the demand for silk in 1855 will not fall short of thirtyfive millions of dollars.

This consideration, may well constitute one of the chief elements,

in the calculations of those who have undertaken the cultivation of silk, or any other product of consumption, or exportation. When twenty-six millions of inhabitants are to be fed, clothed and supported, in all the comforts, and luxuries of this rapidly flourishing republic, instead of thirteen millions, as in 1830, it may be well imagined, what must be the mighty influence, upon all kinds of labor and mechanical skill, in agriculture, manufactories, trade, commerce, and navigation, both foreign and coast wise, the fisheries, canals, railroads and steamboats. Each person has only to add twenty years to his existing age, when he will be placed in the position which has been announced, for realizing that glorious future, which cannot fail of being momentous in its results.

Mr Kenrick, therefore, has but anticipated the wants of the age, in presenting useful information to the commendable adventurers in the culture of silk, which must inevitably become one of the great staples of our internal and foreign commerce.

Before closing this communication, I cannot refrain from expressing my admiration, for the praiseworthy exertions of Mr Wilder of Dorchester, to increase our roses and camellias. Twice during the blooming season of the former, I made special visits to his garden, to behold the magnificent display which they presented. There were nearly two hundred kinds, most of which he had imported from France. It is impossible to imagine a more beautiful exhibition. The vast number, their great variety in form, color and aroma, presented a scene, which to be duly appreciated must be seen.

His collection of Camellias, amounting to over one hundred and fifty varieties, were also chiefly imported from France. When in bloom they will present a superb spectacle.

I was happy to learn that some of them were produced from the seed by Mr Foy of New York, and that one of them was superior in the size of the flower and leaf, to any which have been imported from China or reared in Europe.

The difficulty of procuring from distant regions, trees, scions, or plants of any kind can only be known by those who have made the experiment. So delicate is the physical organization, and so fugitive the vital principle, of vegetables, while so many are the conditions to be fulfilled, and so numerous the casualties to be encountered, that frequent disappointment often discourages those, who have the most favorable opportunities, or are best able to incur the expense; and it is only the enthusiastic, enterprising and determined,

who ever do, or can hope to meet with complete success. It is from this circumstance, that we do not fully appreciate the services of those who have added one new tree, shrub, flower or plant to the existing number. The history of each, which either flourishes in the sumptuous gardens of princes, or the humblest cottage grounds of the peasant,—from the most majestic forest tree, to the modest lily of the valley, constitutes a very curious and interesting portion of horticultural literature. Their introduction forms eras in the chronology of civilization, or gives immortality to the fortunate individuals who make this acquisition to the number of the useful or ornamental products of their country. Lucullus is as memorable for having brought the cherry tree from the southern shores of the Euxine, as for his victories over Mithridates. The name of Sir Walter Raleigh is perpetuated, by the benefit he bestowed on the human race, in transplanting from America a vegetable, which rivals the gift of Ceres to the Greeks, by its beneficent importance to the population of both hemispheres. Prince Potemkin in some measure atoned for his sanguinary conquests, by his encouragement of letters and the arts, his taste for horticulture, and his zeal to enrich the botanical plantations of Russia with the vegetable productions of the countries he subdued. His introduction from the Crimea, of the Black Tartarian cherry, has entwined one ever verdant leaf in the blood-stained chaplet of his military triumphs.*

The vine, the olive and the mulberry, originally transplanted from the fertile and sunny regions of Western Asia, have been the mighty sources of that wealth, prosperity and refinement, which have successively rendered the states of Italy, and the kingdoms of Spain and France, the gardens of the Eastern continent,—awakened among their inhabitants the mechanical genius of Archimedes,—stimulated the artist to revive the manufacturing skill, and rival the splendid dyes of the Tyrians, and bestowed upon their commercial fleets the sceptre of the ocean.

The introduction of the sugar cane and cotton plant, have given a direction to our national industry,—agricultural, manufacturing and commercial,—even within a generation, which fills every mind with wonder and admiration. The stupendous impulse is felt throughout

* This is decidedly the most magnificent and delicious of all the known varieties, and was introduced from the Crimea into his garden near St Petersburg, from whence it was sent to England, and first brought to this country by E. Preble.

the Union, and is producing results of the most felicitous and glorious import.

How rarely are the ultimate consequences anticipated from apparently very trivial incidents. We are too apt to seek a vast cause for grand results, when, more commonly, it is so very minute or unimportant, as to escape the observation of common minds. The fall of an apple, in the presence of a Newton, established the beautiful theory of gravitation, and enabled the astronomer to weigh the planets, as in a balance, to measure their orbits with mathematical exactitude, and to foretel the periodical return of those fiery globes, whose erratic, protracted and tremendous sweep, through the illimitable range of the firmament, had baffled the skill of all preceding philosophy, and they were, therefore, considered by astonished nations, as fearful messengers of divine vengeance, “ shaking from their blazing trains, pestilence and war.”

When genius and intelligence are united, the slightest circumstance, the most inobtrusive fact, the least valuable atom, becomes of gigantic importance. But a single step often indicates the route of moral grandeur,—and this may be taken by one, who at the time was not aware of the high destinies to which it might guide him, and the whole human race. A letter cut upon a prism of metal, a convex piece of glass, a drop of water converted into steam, a single seed or plant, an insect, have each achieved victories for man and for nations, in the arts of civilization, which elevate them in character and consequence, in happiness and prosperity, far beyond the most renowned condition of Egyptian, Grecian or Roman grandeur.

Very respectfully, your obedient servant,

H. A. S. DEARBORN.

Roxbury, July 26, 1835.

[For the Horticultural Register.]

ON THE CULTIVATION OF ACROGENOUS OR POINT-GROWING PLANTS.

MESSRS EDITORS — The cultivation of the more shewy and splendid of nature's vegetable productions, is a taste with which I am by no means disposed to find fault; it is but natural that those objects which are distinguished by the brilliancy of their colors, or by their magnificence in any other respect, should most attract our attention;

hence the homage paid to such plants as the tulips, the carnations and pinks, the dahlias, the camellias, rhododendrons, passion-flowers, and many others that we cannot pass over in walking through a garden, as they will not fail to give notice either to the sight or the smell of their whereabouts. Upon the old principle then of “*de gustibus*,” I quarrel with no man’s taste, but let me be allowed to claim for myself a similar freedom from censure, whilst I put forth an earnest, though feeble endeavor, to recommend to horticulturists the cultivation of a too much neglected tribe of plants. I mean such, as under the Linnæan system, were designated by the term *Criptogamous*, or non-flowering, but to which Professor Lindley of the London University, has lately applied the term of *Acrogenous*, or point-growing; and which he has formed in the manner of his great predecessor, not into a separate family, merely, but into one of the three grand divisions of the vegetable kingdom, viz: the *Exogenous*, *Endogenous*, and *Acrogenous*, answering pretty nearly to the older arrangement *monocotyledonous* and *dicotyledonous*.

The *Acrogenous* plants comprise the ferns, the mosses, the lichens, the seaweeds or *algæ*, but as several of these subdivisions consist of such vegetable productions as are obviously unsuitable for horticulturists, I shall not touch upon them, but confine myself wholly to the ferns, which, both from their size and structure, are sufficiently attractive to merit at least more notice than, as it appears to me, this interesting tribe have ever enjoyed.

Before I can venture, however, to recommend the ferns to the notice of horticulturists, *as horticulturists*, I must presuppose in such as are inclined to fall in with my views of the subject, a strong feeling for the beauty of *form*, and the effect of *contrast* in heightening the general appearance of a garden, for without such a feeling, I should scarcely hope to make any impression by my remarks; but I would fain believe that there are many among your readers, who, charmed as they may be by the brighter glories of the vegetable kingdom, have yet a keen relish for beauties of a less obtrusive kind, and can look upon a leaf or a frond, with an eye akin to that of its Creator, who emphatically pronounced that ALL was good. Let me endeavor, then, whilst others sing the praises of the lily of the field, and of her bright and gorgeous consorts, to call into notice some of her humbler sisters, the *Aspidiums*, *Aspleniums*, *Adiantums*, *Osmundæ*, &c.; let me whilst some pay homage to the “*Patrician Trees*,” do justice to the “*Plebeian Underwood*.”

Who that has ever walked out of a bright spring morning into the verdant fields, and been observant of nature, but must have noticed the irresistibly beautiful effect of the gradual unfolding of the crosier-like ferns? How splendid, how rich their forms. Did ever Christian Bishop bear the insignia of his holy office, more beautifully wrought, than those hitherto neglected models, the work of an Almighty hand? And when unfolded, who that has an eye for the beauty of form, but must have been struck with the graceful fronds of that commonest of ferns, the *Osmunda cinnamomea*, forming the most singularly beautiful natural vases, with their cinnamon colored spikes rising in the centre. Need I advert to the same effect a little varied and perhaps a little heightened, too, in the *Aspidiums*. Again, why should those no less exquisitely beautiful plants, the *Adiantum capillus veneris*, the *Adiantum pedatum* and *trapezoides* be so little known? Can anything exceed the delicacy and beauty of their structure? I must confess that a few visits which I paid to the conservatory of Messrs. Loddiges, of Hackney, near London, who have a pretty extensive assortment of this description of plants, made me at once sensible how much the pleasures of a garden might be increased by their introduction — non-flowering though they be.

The ferns are by no means difficult to rear; in fact they offer some advantages to horticulturists, which, independent of their beauty and variety of form, render them worthy of attention. They are fond of dank, dark corners, and places where other plants will scarcely live at all. They may be planted under trees or tall shrubs, in north aspects, in other neglected spots; they particularly affect shade and moisture, and require no sort of attention when once they have overcome the effect of transplantation. Many of them are partial to old walls and rubble, being satisfied with the most scanty diet. In my own small garden, I have for some years sought their acquaintance, and successfully cultivated all the sorts I could find in my native fields, and often has a stranger been struck by the contrast they present to all the surrounding vegetation, taking them for some rare exotics, which have caught his eye. The ferns are curious in another point of view, as they form nearly the only perfect link between the vegetable world of an ante and a post diluvian age; the fossil remains of ferns, are frequent in many places, and although the common coal bears indubitable marks of its vegetable origin, yet we have no remains of the detail, if I may so speak, of other antediluvian vegetable productions, so perfect as those of the ferns, the leaves and finest

veins of which, are to be found in the most faultless state impressed on the coal.

Let me close these short and desultory remarks by recommending to your readers more attention to this interesting tribe of the vegetable kingdom, as I feel assured that those who venture to make use of the hints thus thrown out, will acknowledge that I have opened a new source of beauty, and therefore of gratification, and if I can but succeed in stirring up some to the rich repast which attention to this neglected class of nature's productions has afforded to myself, one chief object of these lines will have been attained. J. E. T.

ON THE CULTIVATION OF THE VINE, AND WINE MAKING IN CHAMPAGNE.

HAVING received from London the work by Mr Busby, alluded to in a preceding number, we make a few extracts which we think will be amusing and interesting.

“The very eminent wine house of Messrs Ruinart and Son, of Rheims, are agents for Herries, Farquhar, and Co.'s notes. Having called upon them to cash one of these, M. Ruinart, junior, conducted me over their wine cellars, which are very extensive, and all subterranean, consisting of three under ground stores, one beneath another, all mined out of the limestone rock. The wine which has received the last attention which it requires, and is ready for expediting to the consumer, is packed in large square masses, bottle above bottle, and side by side, with no other precaution to keep them steady than a lath passing along between the necks of one layer, and the butts of the next layer above. They generally send the wine to the consumer at the age of three and four years, but after the first winter it is all put in bottle. The stock, therefore, appears immense, and indeed it is very large, for not only are different qualities required, but also different descriptions to suit the varying tastes of their consumers in England, America and Russia, to which countries Messrs Ruinart make their chief exports. A gentleman with whom I travelled, told me that he could get very good sound Champagne at Chalons for two francs a bottle, and was then going to purchase one hundred bottles at that price, but respectable wine merchants never send any to England under three francs a bottle. What is sent to England is more spirituous, and froths more strongly than what is sold for domestic

consumption. The greatest and most minute attentions are necessary in preparing Champagne. The casks in which it ferments, after running from the press, are previously sulphured to prevent the fermentation from proceeding to too great a length. It is twice clarified during the winter, and in the month of March, before the return of spring has renewed the fermentation, it is bottled off. When in this state the bottles are placed in frames, diagonally, with their heads downwards. The lees are thus collected in the neck of the bottle, but they do not consider it necessary to uncork the bottles as soon as the wine is perfectly clear, nor is it considered that there is any danger of the wine spoiling if the return of warm weather should cause a re-commencement of the fermentation, and re-mix the lees through the wine. On the contrary, they sometimes allow the lees to remain to ripen, as they term it, longer than usual. The wine, in general, remains in this state till the following winter, each bottle is then placed in a frame, and carefully uncorked. The contents of the neck of the bottle are emptied. It is filled up from another bottle of the same, and being re-corked, only now requires age to give it all the perfection it is capable of. It of course often happens, that the wine has either undergone less than the usual fermentation, or being stronger than usual, requires a greater fermentation before being put into bottles; and it consequently happens that the fermentation in the bottles is greater than they can bear, and that a large proportion of them burst during the first summer. The floors of the wine cellars are all covered with grooves, sloping to a gutter, by which the wine which has burst the bottles is conveyed to a cistern in the floor, and, as the most perfect cleanliness is observed, a part of the wine is thus sometimes saved.

“ M. Ruinert, junior, is a large proprietor of vines at Ay, where the first qualities of frothing Champagne are made, and to this place he strongly recommended my proceeding, in order to have the most favorable view of the vineyards of Champagne, of which, he said, the cultivation was everywhere nearly similar, although conducted at different places with more or less care. He says the ordinary produce of his own vineyards is from 10 to 12 pieces, of about 46 gallons per arpent, which is about a twentyfifth part more than an English acre; that is, from 440 to 530 gallons per English acre. Having determined on visiting Ay, M. Ruinart gave me a letter to his manager, but he said he expected him the next day at Rheims, and would give him full instructions on seeing him.

Thursday, 22d December.—At six o'clock this morning, I joined the voiture for Epernay, where I arrived at eleven o'clock. After breakfast, I immediately proceeded to Ay, intending to return the next day, also to meet the agent of M. Ruinart, should I not be satisfied with the information I might procure in his absence. Ay is a small town on the right bank of the river Marne, a little higher up than Epernay, which is situated on the left bank. On both sides of the river there is a range of chalky hills, but separated also by a very beautiful meadow about a mile in width. These hills are of no great elevation, and are more or less steep, but in no place is the soil required to be supported by terraces. The range of hills above the town of Ay, is exposed to the full south, except where the exposure is varied by recesses in the range; it consequently produces wine of the finest quality, and very superior to Epernay, which is produced on hills exposed to the north. I walked through the meadow with great difficulty and labor, the road being almost impassable in some places, owing to the depth of the mud. On arriving at Ay, I delivered my letter to Madam Hazart, the wife of M. Ruinart's manager, and expressed my doubts whether I should return the next day. She immediately called the *maitre vigneron* (foreman of the vineyard) to proceed with me to the vineyard, and another to obtain the plants which the letter expressed my wish to procure. The depth of soil before reaching the chalk on the hill of Ay, is in most places, according to the report of the vigneron, ten to fifteen feet; nor is he aware of any difference being occasioned in the quality of the wine, when the chalk comes nearer the surface, which happens a little farther to the east, where they also make wines of the first quality. The soil is strongly calcareous, full of small pieces of chalk, and of stones. Near the top of the hill the soil is more argillaceous and stronger than towards the bottom; and this, in some degree, affects the quality of the wine, but not in a great degree. The great difference is caused by difference in exposure, that to the south producing uniformly the best; where the soil is the same from the top to the bottom, the middle region of the hill is still the most valuable, for it is less subject to the injuries which early frosts frequently occasion in the lower region, and generally enjoys a warmer sun, especially towards the close of the season, than the top. When the season has been extremely fine and warm, from beginning to end, the wine of the higher and lower regions of the hill equals that of the middle region. If I was struck with the closeness of the plants in Burgundy, the closeness of these was more remarkable

still. The vigneron said, that if it were possible to keep the vineyard fully furnished with plants, there would be one for each eight or nine inches in length, by six or seven in breadth. The supposition which I made to illustrate the mode of *provignage* in Burgundy, is actually realised here. Every year an addition is made to the bottom of the vineyard of a certain number of plants, and the whole of the vines are in a state of continual progression, being buried, and by that means carried twelve or fourteen inches up the hill every third year. The process is of course not regular, for in every place there are plants in each stage of the progress which they pass through. According to the number of the voids to be filled, the branches of the stock that is buried are from two to four or five. On each of these branches, when pruned in the spring, are left two buds; these buds produce branches or shoots, which bear fruit the first year. The next spring, three buds are left upon the higher, and two upon the lower of the two shoots; and the spring following, they are pruned to bear shoots corresponding to the number of voids to be filled in their neighborhood — for their turn to be buried has again arrived. By this means, also, a supply of rooted plants is obtained when they are required; but when these rooted plants are cut off, and planted out, they never bear fruit till the third year.”

We also extract a few notices from his Catalogue of Vines:—

“The following three varieties are from the Hill of Hermitage, and are the varieties exclusively cultivated in the best vineyards.

“**CIRAS** — **CAVOLEAU**, **SCYRAS**. This variety is alone used in making the best red wines of Hermitage. Cavoleau mentions a tradition which exists in the neighborhood, that this variety was originally brought from Shiraz, in Persia, by one of the hermits, who resided in the Hermitage, of which the ruins still exist on the hill where the celebrated wine of that name is produced.

“**ROUSETTE** — **CAVOLEAU**, **ROUSANNE**. This variety yields by itself a dry, spirituous wine, and is not very productive.

“**MARSAN** — white. This variety by itself yields a sweet wine; mixed with the Rousette, it produces the best white wines of Hermitage.

“The two following varieties are vines of Burgundy, from the Clos Vougeot.

“**PINEAU BLANC**, or **CHAUDENY** — white. Produces indifferently; is the only variety of white grape cultivated in the best vineyards.

“**PINEAU NOIR** — black. Produces rather more plentifully than

the preceding, but still indifferently. This and the above are the only varieties cultivated in the Clos Vougeot, and other vineyards of celebrity, and this is alone used in making the best red wine of Burgundy.

“The three following are vines of Champagne from the Hill of Ay.

“PINEAU DORE — black. This variety was introduced into his vineyards at Ay, by M. Ruinart, of Rheims, some years ago, and is still confined to some of the best vineyards. It is much more productive than the other varieties of the Pineau.

PINEAU VERT — black. The variety most commonly cultivated in Champagne.

PLANT BLANC, or WHITE PINEAU. This variety and the two preceding are exclusively cultivated in the vineyards, which produce the wines of Champagne of the first quality.”

As this work contains the latest account of the method of cultivating the vine, and preparing the wine, in almost all the wine growing countries in Europe, we shall occasionally resume our extracts, being persuaded that wine will be extensively made in America, at no distant period; for the present we close this article, by a short quotation on the subject of the silk worm.

“After quitting Avignon, I saw no more olives, but the mulberry was most abundant on all sides; and every person with whom I have spoken on the subject, including Messrs Durand, Professor Delisle, Messrs Audibert, Negrel, and Brest, concur in representing the rearing of silk worms as a most profitable pursuit. M. Audibert said, that many persons in their neighborhood who had mulberries did not themselves rear the silk worm, but disposed of the leaves to others. The ordinary price given for the leaves of a good-sized mulberry tree, was from seven to eight francs, and if the leaves happened to be scarce, so much as ten or twelve francs have been given. [The franc is worth about nineteen cents.] They do not begin to strip the trees of their leaves till they are five or six years old.”

ON THE CULTIVATION OF THE POTATO ONION.

THIS valuable variety of the onion was for a considerable time supposed to have been first brought to England during the war in Egypt against Bonaparte; but when inquiry was excited, it was found to have been cultivated in a nursery near London, as early as

1796, and in Devonshire for a period of twentyfive years previous to the Egyptian expedition.

Among the many services rendered to horticulture by W. Prince, Esq., late of Jamaica Plain, we believe we may enumerate the introduction of this onion, from Halifax, some years since; but it does not appear yet to be so generally cultivated as it deserves.

Its principal merits are size, the superior mildness and sweetness of its flavor — in which it very much resembles the large Portugal onion — its remaining uninjured after exposure to the severest frosts, and its ripening as early as the middle or latter end of July.

It is not raised by seed, but from bulbs of the preceding year; thus when a large bulb is planted in April, about July it will divide in four or more smaller bulbs, sometimes eight or nine: hence it is called potato onion, from increasing under ground, at the root. These small bulbs will, the succeeding year, produce large ones, which are fit to eat; but it is, of course, necessary every year to save sufficient large ones to produce small for the next crop.

On slicing a large onion, it may be seen to be composed of a numerous family of young bulbs, ready to be developed the ensuing spring; it is, therefore, the young embryo onion which is eaten, and this accounts for the superior delicacy and mildness of its flavor. It perhaps does not increase with sufficient rapidity to make it become an object of extensive cultivation, but as an article of luxury we believe it will always command a ready sale, when it becomes more known.

I have cultivated it two successive years; the first year, I manured the ground well, and dug it deep, then planted the onion deep enough to cover the whole bulb and greater part of the neck; this method was decidedly not successful; my crop was small and not numerous; this year I did not manure, but simply dug the piece, and then merely pressed the onion about one quarter of an inch deep, leaving the whole completely exposed: we had several smart frosts after this, but they remained uninjured. They had previously been the whole of the severe winter in an open wooden box in the wood-house, perfectly dry, but exposed to all the variations of temperature.

Sometimes the worms, and sometimes the frost lifted them from the original position in which they were planted; I always replaced them. As the roots pushed downwards, the earth being hard where they were pressed, the bulb was a little raised; I found this of no disadvantage — rather the contrary. The crop was ripe and gathered the

last week in July; six of the bulbs, promiscuously taken from the ground, completely divested of every particle of earth, weighed three pounds within a quarter of an ounce. I have no doubt six pickled from the largest, would weigh above three pounds.

From this, it appears to me that this onion does not require a rich soil, and that from some peculiarity in the growth of the bulb, it increases in size as the difficulty increases for the roots to penetrate into the earth. There is a passage in the communication of a valuable correspondent of our Register, (see page 87) which confirms this; and, in sowing onion seed of all sorts, the best method is to spread the seed on the surface, and then tread or roll the bed pretty hard.

J. E. T.

NOTICES FROM FOREIGN PUBLICATIONS.

The following are from *The Annals of the Society of Horticulture, at Paris, for April, 1835*. We do not place quotation marks as signs of simple extracts, for they are rather condensations of such selections from information contained in this valuable work, as we think may be applicable to the state of horticulture in this country.

On the Exposure of the Roots of Trees to the Action of drying Winds and Frosts. We think it interesting to the nurseryman, the horticulturist and the farmer, in fact to all who may be concerned in the transportation or transplanting of trees, to give some account of the result of the experiments laid before the Society of Horticulture, at Paris, on the sensibility of the roots of trees.

On the 18th of December, 1833, M. Jacques took up, in the nursery of Neuilly, near Paris, two plants of fortyeight species of trees and shrubs, which were exposed on the surface of the ground to the weather until the 27th of the following February, about seventy days.

From the 18th of December to the 1st of January, the weather was so mild that several trees and shrubs in the earth vegetated; the whole month of January was also of that temperature, that several trees were in blossom. On the 1st, 2d, and 3d of February, however, it began to freeze, and on these days, the thermometer fell to 7 below freezing point; on the 11th and 17th, it fell to 4 below freezing; finally, the frosts ceased on the 25th.

On the 27th of February, the roots of the trees were immersed in water, and left to soak twentyfour hours: the branches were cut in

moderately, and those roots which appeared dry were carefully refreshed with moisture. They were then planted, and by the beginning of the summer, almost the whole had vegetated; but towards the end of July, some died off. On taking these, several of which were of the hardiest tribes, out of the ground, however, it appeared they had fallen sacrifice to the white worm, and were exhibited in that state to the Society.

As the object of this notice is rather to invite experiment on the subject in our climate, than to offer the result as one which may be depended on here, we shall give the names of those with which the experiment succeeded, as most of them are known in this country.

Amorpha fruticosa,	Hibiscus Syriacus, <i>althea</i> ,
Ailanthus glandulosus, <i>tree of</i>	Jasminum fruticans,
<i>heaven</i> ,	Malus communis, <i>apple</i> ,
Amygdalus communis, <i>almond</i> ,	Mespilus monogyna,
Broussonetia papyrifera,	Ptelea trifoliata,
Bignonia catalpa,	Ribes alpinum, <i>alpine currant</i> ,
Cytisus laburnum, <i>golden chain</i> ,	" <i>palmatum</i> ,
" <i>hirsutus</i> ,	Robinia pseudo acacia, <i>rose</i>
Cerasus padus, <i>bird cherry</i> ,	<i>flowering locust</i> ,
" <i>mahaleb</i> ,	Spirea opulifolia,
Euonymus Europæus,	Sophora Japonica,
Fraxinus excelsior, <i>ash</i> ,	Ulmus campestris, <i>elm</i> .
Hippophae rhamnoides,	

On the Prince de Rohan Potato. The production or introduction of a good, mealy, free bearing potato into this country, is a thing much wished for; and as it is only by trying that we can discover those sorts best adapted to the soil, we think it right to excite attention on this subject, by giving an account of the above potato, extracted from a letter to the editor of the *Annals of the Society of Horticulture, at Paris*.

It appears that eight potatoes arrived, on the 10th of May, 1834, almost too late for a late sort like this; however, they were planted, and the following was the practice and its result.

The largest of these potatoes weighed two pounds; the others were of an ordinary size; the whole eight, however, weighed nine pounds. They were divided into thirtyeight pieces, each with an eye, and planted in holes on a line, at three feet distance between each set. The soil was of a middling quality, had been trenched for several years, about two feet deep, and recently manured.

The first earthing up (bottage) took place when the plants were six inches high; they soon began to grow with extraordinary luxuriance, far exceeding other sorts cultivated in the same manner, and which had been planted on the same soil a month earlier; and towards the end of October, they had reached the height of six feet, without blossoming. They were still growing fast when the frost put a stop to vegetation; each plant was tied to a stake with straw bands, as they increased in height, and they were earthed up a second time.

Between the 10th and 15th of November, they were dug up, and the crop weighed 350 pounds; some of the tubers weighed three pounds — the greatest part one and two pounds; there was also a proportion of small.

On cooking immediately, they seemed rather deficient in mealiness, probably owing to their not being quite ripe; on a second trial, however, after keeping some time, they were found of very superior quality, and very mealy or flowery.

It is often observed that the large potatoes are apt to be hollow in the inside; in this sort it has never been found the case — both great and small were perfectly sound at the core.

It has also been remarked that potatoes planted from small tubers do not produce large ones. M. de Montel planted four sets from a small tuber weighing only half an ounce; from this he obtained a crop of fortyeight and a quarter pounds.

There only remains for us to observe, that this potato, having been liberally distributed at Paris, particularly to M. Vilmorin, Poiteau, Soulange Boudin, and many others, we trust these gentlemen will be kind enough to transmit some to this country, for the purpose of trial.

The Lemercier Cherry. Five or six years ago, M. Lemercier found this cherry in Brabant, where it is cultivated as an espalier, not succeeding as a standard; but it will, probably, do better as a standard near Paris. It is the largest cherry ever seen here, nearly true heart shaped; some of the specimens had the stalks quadrangular near the fruit, and glandular at the other end; the fruit is rather compressed, the skin very shining, transparent, marbled red, which is also visible in the flesh, as may be seen through the transparent skin; it is netted with a greyish red on one side, and a dark brown red on the other. Before the cherry is ripe, the flesh is yellowish, at maturity this is pretty firm, but melting, is easily cut with a knife, and contains a large quantity of sugary juice, slightly acidulated, but with a peculiar

fragrance, to which we are at a loss to give a name; the stone adheres but slightly to the flesh, and although large for a cherry stone, is small in proportion to the size of the fruit.

M. L. Noisette, Paris, has grafted a considerable number of stocks with this cherry, and will have them for sale in the autumn of 1835.

A Mr Godain having stated that he was possessed of a secret in cultivating melons, by which he could communicate to this fruit, at pleasure, any particular fragrance required, a committee was appointed to examine his process; after various examinations, procrastinated and postponed several times by Mr Godain, the committee were unanimously of opinion that no such secret existed, and severely blamed this quackery.

The Abbé Berlèse, a celebrated Camellia amateur, presented to the Society three new varieties of this plant, one of his own raising, two raised by M. Tamponet. The first was named—

CAMELLIA SPLENDIDISSIMA, from seeds of *C. variegata*. Flower large, very full, of a pure milk white, nearly the form of *C. Colvillii*; the outer row of petals are large, numerous, reflexed, undulated, irregular, a little fringed; the centre petals are smaller, thickly studded, also fringed.

This seems to be a free flowerer, and readily to attain a vigorous growth. Its merit consists in its singular form, and in its snowy whiteness, which is extremely rare in seedlings.

CAMELLIA TAMPONEANA. This is a large double red, with a few white stripes, and bears flowers not only at the termination of the branches, but also in the axils of the leaves in the upper branches. [This would give the plant a very rich appearance—ED.] It flowers very freely.

CAMELLIA MADAME ADELAIDE. Flower large, double red, almost perfectly round, brighter color than the preceding, and rather velvety; petals round, well imbricated (laying over each other). J. E. T.

ON HEATING HORTICULTURAL AND OTHER BUILDINGS BY HOT WATER.

THE way properly to approach this subject, is first to consider this scheme as compared with the former methods of heating such structures with flues, warm air and steam. The objections to the first, are

the dry heat it occasions, owing to the hot air circulating through the flues having been in immediate contact with the fire, by which it is deprived of its moisture, partially decomposed or altered, and largely charged with carbonic acid gas; the heat of this air is probably 4 or 600 degrees, and should the fire by accident be made too large, or a leak occur in the flues, the plants are inevitably injured. Warm air is seldom used, but is open to the same objection. We have proved in four months' successive experiments for chemical purposes, that atmospheric air passing over ignited coal, becomes combined with a considerable quantity of carbonic acid gas, which is unfit for vegetation, and injurious to respiration.

The method of heating by circulating steam through pipes, is free from this objection, but the inconveniences are, that accident or negligence may overload the safety-valve, and endanger the building; or what is the most serious objection, that the moment the fire gets so low as to cease driving the steam, the house becomes quickly cold, no heat being given off by the pipes.

To these objections the plan of heating by hot water inclosed in pipes is not liable; the surface by which the air of the building is warmed, scarcely ever attains 160 degrees of heat, (212 is boiling point) and it is almost impossible, if the proportions are originally properly calculated, to bring it to this point; consequently the plants can never be injured by overheat, and the atmosphere remains undeprieved of its moisture, unaltered and uncontaminated. I have seen two adjoining green-houses heated, for the sake of experiment, by flue and hot water, the same species of plants being placed in each: after two months' operation, the difference in vigor of vegetation, in size and color of leaves, was beyond all conception strikingly in favor of the hot water. The thermometer was always much more steady, and the air never felt oppressive. In addition to this, if the boiler is properly constructed, so as to have a sufficient body of water heated, should the fire be let to go out, the water will take several hours to cool, and the pipes will continue to give off heat the whole time.

In fact, the superiority of this plan has been evident ever since its first application; but it has been several times in disrepute, owing to failures and accidents arising from a want of knowledge of first principles in those who have undertaken to construct the necessary apparatus, and in every one trying to start and drive a hot water system of his own, often opposed to these principles, and as often endeavoring to force them beyond their natural limits.

There are two extremes in the application of this system, the space between which has afforded extensive ground for experiments and plans. The first is the method of Perkins, who passes strong tubes of small diameter through the midst of the furnace, and thus heats the water to 4 a 600 degrees; these small tubes continue through the buildings, and give off a large quantity of heat; they take up little room, are easily concealed, and effectually warm the building. This is, therefore, very desirable, as long as the pipes remain sound; but should any accident produce a leak ever so small, the result might be a very dangerous explosion, notwithstanding the safety-valve. It is idle to say that common care will prevent this; several explosions have already taken place — and although every precaution is taken at a powder magazine, yet no one prefers to reside near it.

The other extreme is not heating the water sufficiently to keep up a rapid circulation through the pipes. This often arises from a wrong construction of the pipes and boiler, as well as of the furnace. Heat cannot be economised beyond a certain degree; if every glowing coal is placed in contact with a body which abstracts its heat, it is impossible to keep up a fire, and unless sufficient heat escapes up the chimney to rarify the air there, no draft can be created, and the fire will not burn; therefore, much depends on the proper construction and proportions of the boilers and furnaces. Again, hot water does not give off heat in proportion to its solid mass, but from its surface; therefore, the larger the surface is, compared with the solid contents of the pipes, the more rapid will be the circulation, as the heat is given off quicker, and in larger quantities; to this, however, there are limits in reason.

Attention to the proper levels is of main consequence in this system, as if any part of the pipe descends below the bottom of the boiler, the circulation is immediately arrested.

Kewley's method with a siphon inserted a few inches below the surface of the water in an open boiler, is an excellent way, where an unlimited quantity of heat is required, or where additional heat is wanted occasionally.

FESSENDEN'S PORTABLE STEAM AND HOT WATER STOVE.

T. G. Fessenden, one of the conductors of this journal, has obtained a patent from the Government of the United States, for a new application of the principles of heating apartments by hot water and steam, of which a short description will be given in this place.

The principles or distinctive advantages of this stove, consist in forming *an easily portable apparatus*, which furnishes a convenient mode of arresting and detaining nearly all the heat produced by fire in warming apartments, &c., which in common stoves is permitted to escape through the smoke-pipe and chimney into the open air. This is effected by exposing a quantity of water, inclosed in a proper vessel, to receive that heat from the fire-place which would otherwise pass off through or near the centre of the stove and smoke-pipe, distributing the heat thus obtained within the apartment to be warmed, and condensing and bringing back to the boiler, the steam which arises from the boiling of the water placed in the central part of the stove, without the apparatus of valves, syphons, &c., heretofore deemed indispensable in heating buildings by steam; or the long and cumbrous train of pipes, reservoirs, &c., commonly used where hot water has been employed as the agent in retaining and distributing heat.

Fessenden's Steam and Hot Water Stove consists of a hollow cylinder, standing perpendicularly on short legs. Within this cylinder, are a grate and ash-pit, and a fire-pot, with suitable doors, a drawer, &c., to admit air and fuel, receive ashes, &c. Directly over the fire-pot, and in part within the cylinder, is a boiler, its lower part of a cylindric shape, and its upper part diverging like a tunnel. This is suspended over the fire-pot by the projection of its sides, which rest on the upper edge of the cylinder. Above the projection, within the boiler, (according to the last improvements in the apparatus) is a groove or channel, extending horizontally round the boiler, about an eighth of an inch in depth. Above this, and easily removable, is placed the steamer, or steam-warmer, which may consist of a cylinder of tin, or other suitable metal. The lower end of this cylinder is open, and its edge rests in the groove above mentioned, and its upper end may be closed with a lid. The steam-warmer may be of any convenient dimensions, according to the size of the stove. It is generally made about thirteen inches wide, and eighteen inches high. It may be well, though not absolutely necessary, unless a great heat is required, to use a small tin pipe, for carrying off the surplus steam which may proceed from near the top of the steamer into the smoke-pipe. The lower edge of the steamer resting in the groove, and the groove being filled with water of condensed steam, confines the steam, and at the same time operates as a very delicate safety-valve, and permits a portion to escape, before it can acquire a dangerous elasticity.

This stove may answer for boiling or steaming food for man or beast; and by some alterations, (which will not here be specified, as the inventor intends to petition for a patent for improvements) may be used for distilling water from flowers, herbs, &c., or obtaining pure distilled water for the use of druggists, &c.

The boiler and its contents not only serve to arrest, detain, and eventually give out into the room much heat, which would otherwise escape through the smoke-pipe into the chimney, but the lower part, which enters into the cylinder, forces the current of heat to pass near the sides instead of the centre of the stove, by which means more heat is emitted through the sides into the room, than would be if its course was not impeded. There is likewise, in many cases, a great advantage in having hot water always at hand, which may be taken out of the stove for use when wanted; and the air of a room heated wholly or in part by hot water or steam, is much more healthy, as well as more pleasant, than that which is warmed by common iron stoves.

This stove admits of various forms and modifications, as well as different sizes and prices, too numerous to be here described. Its principal advantages consist in its giving a wholesome and agreeable warmth, its being easily set up and taken down in any location, the steam apparatus removable with nearly as much facility as the lid of a tea kettle.

T. G. F.

A portable apparatus, something like the above, is coming into use in green-houses in England; but from the plans we have seen, it does not appear so simple as that here described.

J. E. T.

ENGLISH PERIODICALS FOR JUNE AND JULY.

THE following flowers are figured and described in the London periodicals for June and July, 1835: viz. *Botanical Register*, by John Lindley; *Sweet's British Flower Garden*, by D. Don; *Botanical Magazine*, by J. W. Hooker.

Clavija ornata, Pentandria monogynia and theophrastaceæ — a very beautiful stove plant, from the Caraccas, with numerous scarlet racemes of flowers, which had been introduced into the imperial gardens in Vienna in 1789, and described there by Jacquin; more recently, in 1829, raised from seeds, at the late Mr Colvill's nursery.

Verbena multifida, var. *contracta*, *Didynamia angiosperma* and *verbenaceæ* — a hardy perennial plant, growing in quantity on the Chilian Alps, varying considerably in the color of the flowers, height of the plant, and appearance of the leaves; in some specimens the color is said to be blue, in others scarlet; that figured is purplish, it runs over the ground, and is very ornamental during the summer months.

Gesnera allagophylla, *Didynamia angiosperma* and *gesneræ* — a stove plant, inferior in color and beauty to most others of the species.

Campanula garganica, *Pentandria monogynia* and *campanulaceæ* — a beautiful and rare creeping *Campanula*, with very numerous blue flowers, figured from plants in Mrs Marryatt's collection at Wimbledon; but being a native of Mount Gargano, in the southern part of Italy, would probably not be hardy enough for this climate.

Psoralea macrostachya, *Diadelphia decandria* and *leguminosæ* — a hardy perennial from California, sent home by Mr Douglas. We do not think it has much beauty, but is curious, from the hairiness of the *rachis*, (that part of the stem bearing the flowers) which remains after the flowers have fallen, in appearance like a long hairy tail.

Pentstemon stacticifolius, *Didynamia angiosperma* and *scrophularinææ* — a new hardy species of this beautiful genus, also sent from California by Mr Douglas; it is nearly related to *P. diffusum*, from which it differs in its much larger and more lilac flowers, and in the form of its leaves. Appended to this is a valuable revision of the whole genera of *Scrophularinææ*, by George Bentham, Esq., the learned author of the *Genera and Species Labiatarum*.

Pæonia moutan lacera, double red curled Tree Pæony, *Polyandria monogynia* and *ranunculaceæ* — raised from the seed of *P. moutan*. This beautiful variety is strikingly different from the other *moutans*, in the bright rosy red of the petals, the innermost of which are very much cut and gashed, curled up, and distinctly bordered with a narrow edge of light carmine, which sets them off to great advantage, and gives the whole flower a peculiarly rich and finished appearance. The seed was sown in September, and did not germinate for eighteen months afterwards; such is generally found to be the case with the seeds of this kind of Pæony.

Russelia juncea, Rushy *Russelia*, *Didynamia angiosperma* and *scrophularinææ* — a pretty scarlet stove plant, from Mexico.

Eriogonum compositum, *Enneandria trigynia* and *polygonææ* — a hardy herbaceous plant, sent by Mr Douglas from New Albion; curious, but not handsome; the genus is a native of this country.

Clianthus puniceus, Crimson Glory Pea, Diadelphia decandria and leguminosæ — probably the most beautiful of all the late introductions to the garden; a native of New Zealand, from whence seeds were sent by the missionaries, under the name of *Kowaingutukaka*, or *Parrot's bill*, and were stated to be the produce of a large tree, but this was no doubt a mistake, as there is no reason to believe that the plant will grow more than three or four feet high.

This flower appears to us to resemble the Erythrinæ, but the plant and racemes are quite different; it is said more to resemble the Scarlet Colutea (*Sutherlandia frutescens*); the wing, keel and banner (*ala*, *carina* and *vexillum*) are of different shades of red, from dark crimson to bright rose color; the banner has white stripes. It appears probable that it will prove hardy in the climate of England. Messrs Young, of Epsom, have advertised plants for sale, at three guineas (about fourteen dollars) each.

Colletia horrida, Bristling Colletia, Pentandria monogynia and rhamnææ — a hardy shrub, raised from seeds sent from Chili, under the name of *Retanilla*; of very little beauty.

Gilia coronopifolia, the *Cantua coronopifolia* of Willdenow, Pursh, Elliott, Andrews, and our No. 2 — Pentandria monogynia and polemoniææ. To our former notice of this plant, it is necessary to add, the different names of *Ipomopsis*, *Cantua* and *Ipomea*, have given place to *Gilia*, amongst which genus, after minute examination, this flower has been most properly classed. It was first introduced into England about the year 1720, from seeds collected by Catesby, in the upper districts of Georgia and Carolina; but as the seeds are seldom perfected in that climate, all traces of it have been lost, until very recently; we do not think that its beauty will allow it to share this fate again, while the attention to horticulture remains in its present state.

Morisia hypogea, Tetradymania siliquosa and cruciferæ — a small, bright yellow, hardy perennial, from mountainous districts in Sardinia; the beauty of its bright green polished leaves, would render this plant valuable for rock work.

Rhododendron nudiflorum, var. *Erimum*, Decandria monogynia and ericææ — a new hybrid between *R. coccinea* major and *R. arboreum*; rather handsome; raised by Mr W. Smith, who seems to have been uncommonly successful in this branch of horticulture.

Anthyllis Webbiana, Rose-colored Kidney Vetch, Diadelphia decandria and leguminosæ — a pretty plant for rock work, but of no other pretensions.

Phlox stolonifera, var. *crassifolia*, Pentandria monogynia and polemoniaceæ. This very pretty dwarf Phlox was introduced from North America, in 1825, and has been received into the garden catalogues as a species; but although we have in vain looked for characters to distinguish it from *P. stolonifera*, it is nevertheless more worthy of the attention of the florist, from the larger size and much richer hue of its blossoms; the leaves are also broader, and of a deeper green.

Symphytum Caucasianum, Pentandria monogynia and boragineæ — a highly ornamental plant, from the northern part of the promontory of Caucasus, uniting the beautiful flowers of *S. asperrimum* to a dwarf habit, thus making it very desirable for the flower border, from which the latter is almost entirely excluded, owing to its rough and tremendous growth. It has been just introduced into England, from the imperial botanic garden at St Petersburg.

Rhodanthe Manglesii, Syngenesia polygamia superflua, and compositæ — a most delightful plant, from the new English colony at Swan river; it is one of the tribe called everlasting, from its remaining perfect throughout the winter, if gathered when in bloom, and resembles the Helichrysum; the plant exhibited at the May meeting of the London Horticultural Society, measured from eighteen inches to two feet in height, and was covered with hundreds of open flowers and expanded rosy buds; it remained in blossom three months.

Primula ciliata, var. *purpurea*, Pentandria monogynia and primulaceæ — a hybrid seedling from *P. auricula* and *P. ciliata*. It is an extremely showy plant, from the brilliancy of its purple blossoms, which are produced in great profusion; but the tint of coloring, it is almost impossible to imitate.

Randia Boweiana, Pentandria monogynia and rubiaceæ — a handsome yellow blossomed stove plant, from Brazil.

Echinocactus Eyricsii, Icosandria monogynia and cactææ — one of the globular cactus tribe, much resembling *C. grandiflorus*, both in its fragrance and its habit of flowering at night; but the flower is much smaller, yet very elegant in appearance. It is a native of Mexico.

Barosma crenulata, Pentandria monogynia and rutaceæ — a pretty little pink flower, resembling the diosma, and called Bucku in its native country, Africa. An infusion of it has lately obtained much celebrity in Europe, for its medicinal properties, being sudorific, diuretic, and tonic.

Primula Palinuri, Pentandria monogynia and primulaceæ — the Palinurian primrose, a native of Palinuri, near Salerno, in the Neapolitan territory; it resembles *P. veris*, the cowslip, but is more luxuriant in every part, and seems to be a most showy and desirable plant. In England it blossoms in March.

Craspedia macrocephala, Syngenesia segregata and compositæ — a beautiful large-headed flower, from Van Diemen's Land, of the same tribe as the Gnaphalium, the little white cottony heads of which are so conspicuous in our pastures; the fragrance being luscious, like that of a honeycomb.

Stypandra propinqua, Hexandria monogynia and asphodeleæ — an elegant purple flower, from New South Wales, an inmate of the greenhouse.

Leptospermum scoparium, var. *grandiflorum*, Icosandria monogynia and myrtaceæ — a pretty plant of the myrtle tribe, from Port Jackson, New South Wales, where it is a native of swamps.

Acacia tristis, Polygamia monœcia and leguminosæ — a plant only differing from the very well known *A. armata*, or from the less known *A. undulata*, in a few botanical minutæ.

Isopogon Loudoni, Tetrandia monogynia and proteaceæ. The present, a rare and handsome plant, and probably the most showy of all the genus, was one of the discoveries of Mr Baxter, whilst on his last visit to King George's Sound, in 1829; and the name he gave it, which has been adopted by Mr Brown, was in compliment to the respectable and laborious editor of the several well known elaborate works on botany and gardening.

Rhododendron Caucasicum, var. *straminea*, Decandria monogynia and ericææ. We have here a fine straw-colored Rhododendron, with magnificent heads of large flowers; the figure was taken from a plant in the Glasgow botanic garden, but from where received is not mentioned; the under part of the leaves, like that of several other varieties, is of a rusty iron color.

In the above quoted works, there are several orchideous plants, which, for reasons previously mentioned, we do not notice at present; we cannot, however, help mentioning

Cypripedium insigne — Large-flowered Ladies' Slipper — a most beautiful variety, from Nepal, of a plant which ornaments the American forests; and the cultivation of which here, would amply repay the horticulturist who pretends to the least taste — and

Dendrobium densiflorum, also from Nepal, is a magnificent specimen of the orchideous tribe ; but this latter probably requires considerable warmth.

From *London's Gardener's Magazine*, for July, we extract the following :—

Remarks on Grafting, and more particularly on Summer Grafting.

By WILLIAM THOM, Esq., Surgeon, Annan.

IN inserting the graft, I operate nearly in the same manner as for budding, and defer heading down the stock or branch till an after period. I make an incision of the form of an inverted capital L, thus Γ , and I carefully raise up the angular piece of bark with the handle of a budding knife, leaving the bark on the opposite side undisturbed. I then pare the lower end of the scion, to the extent of an inch, or an inch and a half, upon one side, into a thin wedge shape, and slip it gently in beneath the raised bark, taking care that the side which lies next the undisturbed bark of the stock be perfectly straight, so as to fit accurately to it. Indeed, the more effectually to insure the absolute contact of the inner bark of the scion and of the stock, I frequently take a minute paring of outer bark from off that edge of the scion which is to be applied to the unraised side of the bark of the stock. The upper end of the scion, which should contain one eye only, or, at all events, not more than two, is allowed to project beyond the wound of the stock, while the inner bark of each will be applied to each other. This latter circumstance is of great importance, as it is between these two portions of bark that the union takes place. Accordingly, it is a matter of the utmost moment, that they should be kept in apposition, which can only be done by the proper application of the ligature. This ought always to be applied, by turning it in the direction which will tend to approximate the edge of the scion to the edge of the undisturbed bark of the stock. Should the ligature be turned round in the transverse direction, it may cause the scion to be shifted from its proper place ; a circumstance to be most cautiously avoided, since the smallest fissure intervening between the inner bark of the stock and the inner bark of the scion, will very likely prevent union, and failure in the operation will, in all probability, result from thus mismanaging the ligature. The fabric of the ligature is not of much importance.

The Management of the Stock. When, from the pushing of the

bud, it becomes evident that the scion has adhered, the stock is partially beheaded, say to the extent of two thirds or three fourths of its branches and foliage; but not to a greater extent, lest the circulation of the sap, or vegetative process, should be impeded; but when vegetation in the scion becomes vigorous, then, and not till then, are all the branches of the stock gradually and cautiously removed: promptitude, at this period, is more dangerous than delay.

Season for Grafting. Spring is the season in which grafting has usually been performed; and I apprehend that few gardeners or nurserymen have at all adopted the more convenient practice of grafting with scions of the current year's shoots, during the summer season, as pointed out by Mr Knight, several years ago.

I am not aware of the earliest period of summer at which the operation of grafting may be performed, but I am at present conducting a series of experiments to ascertain the fact. Circumstances induce me to imagine that young wood, of many varieties of fruit trees, will be sufficiently ripe to perform the operation as early in the season as young wood can be procured, as I find that scions inserted in June have greatly the advantage of those in July.

Last year, 1834, on the 26th of June, I inserted scions of young wood of the Passans de Portugal pear, upon the branches of a well-established autumn bergamot, and on the 2d of July, I inserted a few more. The shoots of the former measure two feet four inches, whilst those of the latter are only seventeen inches. Again, the utmost limit attained by the longest shoots of grafts inserted in the spring, of the same variety, and on the same tree, was three feet; thus outstripping the June grafts by only eight inches.

Reasoning from the above experiment, no person would infer that grafting in June is preferable, in every instance, to grafting in March or April; but it is certainly consolatory to know, that work which has been neglected during the hurry of spring, or omitted from lack of opportunity of procuring grafts of the desirable varieties, may be accomplished in summer, with such a very trifling decrease in the growth of the shoot during the season.

Thus, also, from a scion of any rare or valuable variety, of only two or three eyes, procured in the spring, scions of the young wood may be taken in June or July, so that the propagator may have some young trees fit for removal or the market, in the month of November. The scions of young wood of the pear above mentioned, were produced by grafts that had been inserted as late as the 7th of April preceding.

I make no difference in my method of operating, whether the scions be of the last or of the current year's growth. In the latter case, I sometimes leave a small fragment of leaf adhering, as in budding, and at times denude the scion of all except the leaf-stalk; but have not perceived any difference in the result, which is almost invariably successful.

Annan, May 25, 1835.

SALISBURIA ADIANTIFOLIA. The male tree is now (May 1) in flower against a wall in Kew Garden; and, as a standard, in the grounds of a house adjoining the Mile End Nursery. We should be glad to know if it has flowered any where else in England this season, or at any former period. As far as has been observed, the parent male tree in the Mile End Nursery, has never flowered. The tree in the grounds adjoining has been much injured in the trunk, which may have operated upon it like ringing, and be one cause why it has flowered. Another cause may be, that it is shaded and overtopped by other trees on one side, which has consequently thrown the whole of the energies of the tree into a lateral branch; which branch is extended far beyond all the others on the open side of the tree; and it receives the reflected heat of the south front of a house, from which the branches are only distant a few yards; and on the extremity of these branches the blossoms are chiefly found. A small tree at Strasburg, which blossomed in 1828, was nearly in the same circumstances: it was overtopped by a large poplar, and the blossoms were only produced on the point of a shoot which had stretched out from under those of the poplar, and had reached the free air, where it enjoyed the direct influence of the sun. The only female salisburia in England, that we know of, is in Kew Gardens; but it has never flowered. All the female salisburias in Europe, M. Alphonse DeCandolle informs us, have been propagated from one tree, which his father discovered fifteen or eighteen years ago, in a garden at Bourdigny, in the neighborhood of Geneva. The history of this tree, if it could be procured, would be extremely interesting. M. A. DeCandolle has kindly promised to visit the garden, and examine the tree this season, and, if it flowers, to send us specimens or drawings. In the mean time, we would suggest to every possessor of a large salisburia, whether in England or on the Continent, to examine it with a view to ascertaining whether it has produced flowers this season. It is not perfectly certain that the tree is diœcious; and there may, therefore, be trees in

England that produce both male and female flowers. It is not easy to understand how a female tree got to Geneva, unless the first introduction of this tree to Europe, or any subsequent introduction, was by seeds. In the mean time, we recommend possessors of male salisburias to bud or graft the female on them. They take readily by grafting, as we proved in 1831; having put on five scions, all of which succeeded. We have now at Bayswater a handsome tree, fifteen feet high, with two leading shoots, one of which is female, and the other male. Messrs Loddiges have plants of the female salisburia for sale, which they grafted from scions sent by M. DeCandolle, two years ago. About thirty years since, they raised one plant of salisburia from seed; but they are not aware to whom they sold it.

MASSACHUSETTS HORTICULTURAL SOCIETY.

THE shows for the month past have been as attractive, perhaps, as at any period since the organization of the Society. The following is a concise sketch of some of the weekly exhibitions, &c.

August 1. M. P. Wilder, Samuel Walker, William Kenrick, R. Ward, Messrs Hovey, varieties of fine flowers. Hon. John Lowell *Yucca gloriosa*, *Erythrina crista galli*.

Fruits.—Messrs Winship, pears of several sorts. Richard Wood Roxbury Russets, the growth of 1834. Mr Wainwright, large gooseberries. Wm Kenrick, Samuel Walker, B. A. Houghton, varieties of gooseberries. Messrs Winship, specimens of Egg-plant.

August 8. A donation of seeds of the Silk Tassel Rose, from Com. David Porter, Charge des Affaires of the United States at the Sublime Porte, directed to Gen. Dearborn, was received, and the thanks of the Society presented to the donor.

A letter was received from Mr John Lewis Russel, of Salem, Professor of Botany, &c., for the Society, announcing his acceptance of an invitation to deliver an address at the anniversary of the Society.

A letter, accompanying a donation of China flower seeds, from Mr Alexander Walsh, of Lansingburgh, was received, the seeds placed in the hands of the Committee on Flowers, and the thanks of the Society were presented to Mr Walsh.

August 15. A letter was received and read from Hon. John F. Ell, concerning Dahlias, with some specimens in illustration of the letter.

Flowers were exhibited from M. P. Wilder, S. Walker, E. Weston, Jun., W. Kenrick, Messrs Hovey, B. T. Winslow, and Messrs Winship.

August 22. Pears, by C. Bowen, M. P. Wilder, W. Stearns, B. V. French, Mr Manning. Apples, by Mr Manning, E. M. Richards, B. V. French. Plums, by Mrs J. Domett, Messrs Winship, and others. Flowers, from the gentlemen who have usually contributed.

MISCELLANEOUS ARTICLES.

COLLECTED BY T. G. F.

TO MAKE KITCHEN VEGETABLES TENDER.—When peas, French beans, and similar productions do not boil easily, it has usually been imputed to the coolness of the season, to unseasonable rains, the nature of the soil, &c. These popular notions are erroneous. The difficulty of boiling them soft, arises from a superabundant quantity of gypsum imbibed during their growth. To correct this, throw in a small quantity of sub-carbonate of soda [common soda of the shops] into the pot along with the vegetables, the carbonic acid of which will seize on the lime in the gypsum, and free the legumes from its influence.—*Bulletin des Sciences.*

PRESERVATION OF SEEDS.—If seeds are intended to be sent a great distance, or it is wished to preserve them a long time, they should be wrapped in absorbent paper, and surrounded by moist brown sugar.

PRESERVATION OF VINES IN GARDENS.—A correspondent assures us that the application of a small quantity of gypsum finely powdered on each hill of cucumbers, melons, &c. with a dredging box or a sieve, will preserve those vines from the striped bug, which commonly infests them. The powder is applied as soon as the insects appear on the vine, when they are wet with rain or dew, that it may adhere to them. Should this be washed off by rain, the application should be renewed till the vines are so far matured as to be out of danger.

SIMPLE MANNER OF KEEPING APRICOTS, PEACHES, PLUMS, &c. FRESH THROUGHOUT THE YEAR.—Beat well up together equal quantities of honey and spring water; pour it into an earthen vessel, put in the fruits all freshly gathered, and cover them up quite close. When

the fruit is taken out, wash it in cold water, and it is fit for immediate use.

SUPERIOR COMPOSITION FOR TREES. — The following has been recommended as a "Superior composition for trees." in a letter from Hon. J. H. Guormey to W. Prince and Sons. It was first published in the *New York Farmer*.

One part, say one quart common tar. Two parts say two quarts chalk, finely pulverised and sifted. Put the tar into an iron kettle, heat it, and while hot, throw in the chalk. Care should be taken not to boil it too much, either when first made or when using it, as that will make it too hard and brittle. Should it by accident become so add tar till sufficiently soft. When to be used, heat it over either in an earthen or portable furnace, or fire made on the ground on or near the place where wanted, so as to boil or become sufficiently soft, which a little experience will show, and apply it with a small iron or wooden spatula, covering the wood entirely with a thin coat, and leaving no place for the water to get under the composition. It will remain on for years, but may be taken off whenever the bark shall have grown over the wood. It will be found on examination that there is no dead wood under it. Any one who delights in seeing fine healthy trees, after having once tried the experiment, will never abandon its use. It is particularly valuable for covering the stumps, when old trees are headed down. This composition was invented, and an account of it published, by some gentlemen either of England or Scotland, I think Sir Arthur St Clair, soon after Forsyth first published the account of his composition for healing wounds in fruit trees, which is very troublesome to make, and still more to use. It is probably known to many horticulturists, but ought to be known to all who cultivate fruit trees; and if you think the publication of these remarks will be useful, they are at your service.

GARDENER'S WORK FOR SEPTEMBER.

CAREFULLY and industriously attend to such crops as are not yet gathered; and see that no weeds are permitted to ripen their seeds, and give you a hundred for one of these nuisances another year. In gathering a crop, or any part of a crop, of any useful product, remove

at the same time the roots, leaves, stems, or whatever else belonging to the plant of which you have taken the desired part, and which is of no farther benefit, or may appear slovenly, decaying or offensive. In cutting cabbage, lettuce, &c., pull up the stem and roots, and take them at once with the outside leaves to the compost heap, or throw them to swine. Do the same with the haulm of potatoes, leaves of turnips, carrots, celery, &c. Do not suffer the haulm of peas and beans to remain a moment after the last gathering of the crop. You may sow the first week of this month a full crop of the prickly seeded kind of radish for winter and spring use. It may be sown broad-cast, and two ounces will in that case sow a bed four feet and a half by thirty feet. If sown in drills, one ounce will sow the same space. Let no crop of fruit or herbaceous vegetables, or any part thereof, go to waste on the spot where it grew. When decay or any symptom of disease appears, let it be instantly removed to the compost yard, or placed where it may be consumed or made into manure by pigs or cattle. Earth up celery as it advances in growth, but be careful not to cover up the hearts of the plants. This work should be done in a dry day. Be careful not to bruise or injure the stalks; for if they are crushed or wounded, they will be liable to rot. Gather and preserve your ripe onions. When the necks shrink, and the leaves decay, pull and spread them out on a dry grass-plat, or some other suitable place to dry and harden, turning them over every two or three days; and in ten days or a fortnight, they will be ready to house. The scallions should not be mixed with the good onions, lest they should cause them to rot, but be hung up in some dry place, in small bunches, where they will not be too much exposed to frost. Gather all kinds of seeds, as they ripen, which you intend for planting or other uses. The dry kinds of seeds are best kept in their pods or outer covering; but the seeds of all soft fruits, as cucumbers, melons, &c., must be cleansed from the pulp and mucilage which surround them; otherwise the rotting of these parts will corrupt the seeds.

FRUIT GARDEN AND ORCHARD. Protect your grapes and other fruit from wasps. In order to do this, you may hang up phials of sugared or honeyed water, near the fruit you intend to defend from their attacks, in which many of the little plunderers will be caught and destroyed. The fore part of the month you may form plantations of strawberries. "The soil should be light, warm and gravelly; and the manure to be applied should be exclusively vegetable, and not

animal manure. The usual practice is to manure the ground with rotten dung, with a view to increase the size and quantity of the fruit. Rotten leaves, decayed wood, ashes in small quantity, mixed with other vegetable substances in a compost heap, will make a better manure for strawberries than any animal substance whatever. As the vines which bear this fruit require great moisture to bring the plant to its proper size, the soil and situation in which they are placed must not be too dry."—*New American Gardener*.

VINEYARD. "Grapes may be kept fresh for a long time, by the following method: before the autumn frosts have killed the leaves, let the bunch with the shoot be carefully cut off the vine; then let the lower end of the shoot be put into a bottle filled with water, which hang up with the shoot and branch in a warm room, or in a greenhouse.

"The bottle should be filled with fresh clear water every ten or twelve days, and at the same time a thin paring should be cut off the bottom of the shoot, whereby the pores will be made to imbibe the water with greater facility.

"By this method, grapes may be kept fresh and good till the middle of February. Grapes may also be kept in jars; every bunch, when well aired and perfectly dry, should be wrapped up loosely in soft white paper, laid in layers, and each layer covered with bran, which should be perfectly well dried before it is used: first lay a little of the dry bran in the bottom of the jar, then a layer of the wrapped up grapes, and so on, a layer of bran and a layer of grapes alternately, till you have filled the jar; then shake it gently and fill it to the top with bran: cover the top with paper, and over this a piece of bladder doubled, which tie firmly round, to exclude the air; then put on the top or cover of the jar, observing that it fits as close as possible. These jars should be kept in a room where they will not be exposed to damps, frosts, nor too much heat.

"In order to preserve a few of your finest bunches from the depositions of birds and insects, let some small bags, made of thin gauze or crape, be drawn over them; or, rather, let the bunches be put into the bags; the sun and air will have free access through the crape, and when wet, will dry very soon."—*M' Mahon*.

THE

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AND

GARDENER'S MAGAZINE.

OCTOBER 1, 1835.

ON MICROSCOPIC BOTANY.

To the microscope we are indebted for almost all the recent acquisitions of knowledge both in botany and entomology; without its aid the structure of the more minute vessels of plants would be hidden from us, and our attempts to develop the laws which govern their growth and reproduction would be fruitless. The improvement of this instrument has therefore employed the attention of the ablest men of science, of artists, and of naturalists of the present day, and their exertions have been crowned with considerable success, as may be observed by the public exhibitions of the microscope which are making in many cities of the union. Such as these are however within the reach of few and are not adapted for privately observing the objects which may cursorily fall into our possession.

The chief object of the present communication is to present a few instructions and directions by pursuing which any one may, at a very trifling expense, construct an instrument which will give him access to the astonishing and magnificent structures of plants and insects over which without this aid, minuteness throws an impenetrable veil.

I would first however notice that it has been by microscopic observation that the celebrated botanist Mr R. Brown discovered the true method of fecundation of the families of Orchidæ and Asclepiadæ; by these the crystals have been discovered in the stems of grasses, Equisetums, and in the cellular tissue of the flower of Ophrys — it has been by these that plants and insects have been found to possess many distinguished marks by which they have been

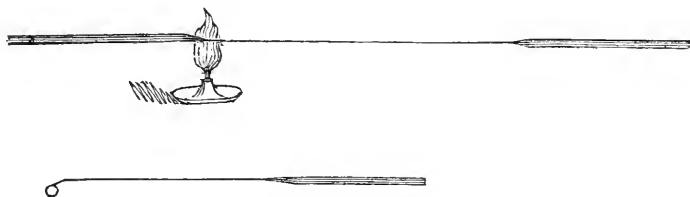
divided into genera and classes, so as to form a dictionary to which the naturalist may readily refer for information; in fact without the microscope, proper scientific divisions and subdivisions must have become almost impossible. Thus the character of the two grand distinctions of the vegetable kingdom, the vascular and the cellular, have been confirmed — the former tribe bearing flowers, being discovered universally to possess spiral vessels, the latter as universally to be without them. Another singular consequence of the use of the microscope is — that a German botanist of the name of Meyen wrote a very few years since a work on microscopic discovery (*Microscopische Entdeckungen*) in which he describes the vegetable conferva, *zygnema nitidum*, a water plant, as having a spontaneous motion, the globules contained in its filaments having a life partly vegetable, partly animal, and reproducing similar globules, some of which became animals endowed with motion; thus endeavoring to connect vegetable existence with that, which was then considered the lowest in the chain of animals, of those produced during vegetable infusion, called animalculæ infusoriæ. Another German naturalist, Ehrenberg, had however in the mean time been devoting five or six years in microscopic observation on these very infusorial animals and by the ingenious method of placing them in water colored by indigo and other substances, had discovered an internal circulation of fluids and a structure so curious and complicated, that elevated these very minute creations, to a class far higher, in animal existence, and annihilated this foud theory of the chain of connexion between vegetable and animal.

The pleasure of observing these minute operations of nature, of seeing how beautifully every part of a plant or creature is adapted to its mode of existence is very great, particularly if, as in the method I am about to describe, the instrument can be used at a few minutes' warning and is perfectly portable.

In the British Museum in London there is or was a case containing a number of small globules of glass with which the celebrated Leuwenhoek made his microscopic discoveries, and in the same collection there is a rare work with engravings of microscopic objects of natural history by La Torre, all which were made with the assistance of globules of glass of his own manufacture; of this last work a gentleman who has passed many years in such observations with the finest compound instruments, made by Tulley and Gould, remarks, "indeed without seeing them we could hardly have believed that

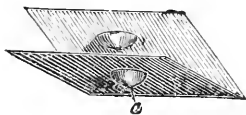
glass spherules were capable of affording such accurate views of the objects as must have been the case for him to delineate and furnish such excellent engravings.”

These spherules of glass are easily made from thin strips of glass such as the glaziers cut when fitting windows, say about one sixteenth of an inch square ; thus, take one strip in each hand and hold the ends touching each other in a spirit lamp until red hot and melting, then draw out one end till it makes a long, fine thread thus:



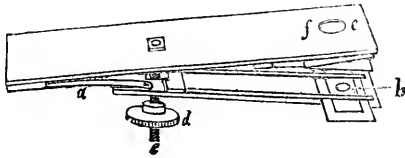
put this thread into the flame, it will melt and run up into a globule ; this is the microscope, which may be smaller, but seldom is of any use if larger than a large pin's head : a little practice will soon give facility in making them, and it is better to make twenty or thirty at a time, as out of this number there will not be more than two or three of a perfect shape or without air bubbles and stripes. It must be done in a spirit lamp, as any other would by the smoke injure the clearness of the globule, but any clean lamp will do by pouring in spirits of wine instead of oil ; the best window glass should be procured, white phial glass has too much oxide of lead in it, which is apt to be reduced to a metallic state in heat.

The next process is to *set* these minute globules so that they may be tried and selected. I have generally done this with thin sheet brass as thin as writing paper, but I believe thin lead would be preferable as being more easily worked — double a strip of lead two inches long and half an inch wide, and with a punch make an indentation, through the apex of which push the point of a fine needle, open the strip half way, it will then have this appearance. *a* the hole made by the needle. Into the lower cup drop the globule, taking care that the stem which remains on breaking it from the slip of glass does not come in the hole made by the needle, shut down the upper half, turn up the ends to keep it in that position, you will then have your globule confined between the two plates of lead, to the aperture of which the eye is applied.



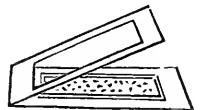
As these spherules possess a very high magnifying power, the *focus*, that is the distance they must be placed from the object, is very small, therefore the machinery to adjust the focal distance would appear to be necessarily complicated; but it is extremely simple.

Take two plates of brass, about one eighth of an inch thick, one three inches, the other two inches long, rivet them together with pieces of broken watch spring, to be had readily at any watch-maker's:



thus, *a a* the watch springs — *b* the object kept down by two strips of brass, iron or steel, under which it slides — *c*, under this plate is the globule set as above, kept in position by two similar strips — *d e* are a fine screw and nut; the screw is fixed into the long plate, and the action of the nut is to bring the two plates nearer to each other; and if the screw is as it ought to be, fine, the approach of the microscopic lens can be regulated to a 400th part of an inch. A great advantage of this is that it may be carried in the waistcoat pocket, and also that it requires no reflector, being held in a position between the eye and a direct light, either the sky or a candle. *f* is the hole to which the eye is applied.

The preparation of objects is equally simple: thus, take a piece of card $1\frac{1}{2}$ inches long, $\frac{3}{4}$ of an inch broad, cut out a portion — cut a piece of paper of the same size and shape, spread some glue very thinly over each, and suffer them to dry; always prepare a dozen or two of these; cut some pieces of clear mica (isinglass), first split very thin, rather larger than the hole in the card, moisten the edges and lay it on; it will immediately adhere to the glue: proceed in the same manner with the paper, which should then be fastened to the card thus: Place the object where the dots are marked on the mica fixed to the card, and shut the paper down, after moistening the edges; it will stick, and the object will thus be confined between two pieces of mica so thin as to permit the microscopic lens to approach within a 500th part of an inch. I manufactured one of these



machines for myself, some years ago, and have several hundred objects thus prepared. I find the globules answer every purpose of the best microscope, and have never yet seen an engraving or description of any object which I was unable to discern with my apparatus, although there are many so minute and delicate as to have acquired the name of tests for the powers of the microscope.

For the use of those persons who may wish to prepare their own microscopes, I will name that one of these tests is the hair of a mouse, on which, if the microscope be good, dark rings may be discovered; also the feathers (powder, it is usually called) on the wing of a small moth, the vertical lines and quill of which should be distinctly visible.

The structure of vegetables which are viewed through the microscope with great interest by the botanist, are the pollen of different flowers. That of the Scarlet *Salvia* is round, with curious, dark, well defined zones; of the *Oenothera*, or evening primrose, the shape is triangular, with round corners; of some of the Mallow tribe, as the hollyhock, it is circular, with protuberances like thorns.

The seed vessel of ferns, with its spring for bursting open when ripe, and ejecting the seed, is very curious.

The seed of the *Equisetum* or horse-tail, a plant flowering in moist meadows everywhere, with its four club-shaped filaments, is a most interesting object.

These are but a few, and I do not enumerate more, because there is scarcely any part of a plant unworthy of microscopic examination. I have prepared three or four hundred objects in the manner above described, and it is always delightful to me, when I can spend an hour or two in looking them over.

The curious water plants must not be omitted. Of some of these, Professor Lindley observes, that the *Oscillarias* have an oscillatory movement, extremely active and perceptible; and the *Ulva labyrinthiformis* and *Anaboina*, with all the appearance of a plant, has, according to Vauquelin and Chaptal, all the chemical characters of an animal. The *Zoocarpæ* are also most extraordinary productions, in which the animal and vegetable nature follow each other in the same individual — vegetables in the earlier period of their existence, but producing in the room of buds little microscopic animalculæ, which after a certain length of time become filamentous vegetables.

I cannot close these remarks without mentioning a pocket microscope which I have just received, invented by a London optician, on

a new principle, which combines the great desideratum of a very strong and clear (perfectly achromatic) magnifying power, with a large field or space of vision; the whole size of the instrument is one inch in length, and five eighths of an inch wide. It is considered in London quite an acquisition.

Many more observations on this subject occur to me, but the communication would run to too great length, and should this prove of interest it may be resumed on a future occasion.

ON THE STUDY OF BOTANY.

It has often surprised me to find amongst Horticulturists so few persons who possessed the slightest knowledge of Botany, and I have more than once endeavored to account for this deeming anomaly, for it does appear strange, that persons who take so strong an interest in the cultivation of favorite plants, should remain entirely ignorant of the laws and principles which govern their growth, as an acquaintance with these, would so often throw light upon matters which it is important for them to know. It is true, that such persons attain by degrees to a kind of practical experience, the result of their own observations, and I am very far from despising the knowledge so acquired, but still this is by no means all that is to be had; we may profit much by the stored up information of others, and when this, as in the instance of the science of Botany, has been collected in sufficient masses, so as to admit of being systematically treated of, and applied, it does, as I said, appear somewhat singular, that so few of those to whom it would be so useful, should have troubled themselves about the matter. The truth, I believe, really is, that this ignorance is chiefly to be ascribed to the superficial treatment the science itself has undergone; it has been hitherto made to consist principally, if not entirely, in a sort of Dictionary of hard and uncouth names and terms, with very few observations of a practical kind attached to them or any great and leading principles laid down as guides to our researches; and Horticulturists are therefore not so much to blame as might at first be imagined, inasmuch as little or no scope was afforded them, whilst the science remained in this its almost empirical state, for entering with profit into its barren mazes. The great Linnæus

seemed to be aware of this, even after he had established his celebrated sexual system, for he made strenuous endeavors towards introducing another and a better arrangement of plants, which he foresaw would one day be established, and which he properly denominated the Natural System, that great object of the philosophizing Botanists of the present time, as being that alone by which real knowledge of the vegetable kingdom can be gained. The Horticulturist has now no longer the excuse to set up, which he might formerly fairly have done, for the labors of the two Jussieus, Decandolle, Richard, Brown, and though last not least of Lindley, professor of Botany at the London University, and others that might be named, have at last raised the Science out of its state of empiricism and degradation to somewhat more of its true dignity, and although very much remains to be done, (as in what science is not this the case) yet enough has been effected, to render it worthy of every attention from those who make the cultivation of any branch of the vegetable kingdom an object either of study, or simply of mere recreation. The science has been completely emancipated from the merely mnemonic form it had so long assumed, and is arrived at such a state, that it has not only become capable of exercising the powers of mind of the most highly gifted individuals, but of tasking those powers to the utmost, without by any means exhausting the subject. The profound researches of several of those whose names have been given above need only be adverted to, in full proof of this assertion. Let not then the Horticulturist remain any longer ignorant of a science which it imports to him above all others to be well acquainted with; he will find it no longer a barren study.

Having said enough, I trust, to rouse such of your readers as may have contented themselves with what they may term the practical, as opposed to the theoretical part of the subject, to undertake the pleasing task of investigating it in a more regular, systematic and therefore really more practical manner, I will now endeavor to point out the mode which appears to me best calculated to secure this object, and I deem it rather an advantage than otherwise that my own attainments in the science are but slight, for I am not yet arrived at that point, when the difficulties to be overcome have been so long mastered, as to allow me to forget the steps of the progress, and thus to point them out to others; I am rather in the situation of one of the teachers of the lowest form in a Lancastrian School, that is, just able to impart the small measure of knowledge I possess, to those who

have yet to make their first step, and if I can effect this, it is all I can hope for, and all I can pretend to.

As in Chemistry so in Botany the great instruments for arriving at any just views of the subject are analysis and affinity. By the first we are enabled to separate and thus to discover the component or constituent parts, whilst by the last, we are enabled to trace those constituent parts in all their various modifications, and by following up their arrangements in their several groups, to attain to some knowledge of their nature and properties. The greater or the less success of these investigations into nature, has mainly depended upon the having got hold of the right clue, and although there has been much groping in the dark in this science, yet we may I trust at length flatter ourselves, at having got into the right path with every chance of arriving in safety at its termination. To Linnæus, above all others we are indebted for pointing out this path, though he did not make much progress in it himself and for the simplest reason, that man does not live for ever; the course of our life scarcely admits of more being done than Linnæus actually accomplished, and our gratitude to him need not be lessened because he left much for posterity to effect. Posterity has since performed its task well, as far as the time would admit. Until Linnæus' time it can scarcely be said that Botany as a science existed at all. He first seized upon one grand feature in the vegetable creation, the organs of fructification, in other words, on those parts which almost all plants possess in a *visible shape*, namely, Stamens and Pistils, and which though invisible in some, may yet by analogy be supposed to exist likewise even in these, and which according to the theory laid down by Lindley, really do exist in all. Having laid hold of this principle of vegetable life and organization, Linnæus proceeded to raise his so called artificial system upon it, and although, as we shall see in the sequel, it contained (if I may so speak) the seeds of its own destruction, yet was it a considerable step in advance of any previous arrangement, and it assisted not a little in paving the way for that better arrangement called the Natural System, which alone is based upon sound philosophical principles. Linnæus' artificial system contained in fact many classifications that were perfectly natural; thus the cruciform or cross flowered plants, such as the wall-flower, cabbage, turnip, cress and others formed a natural order; the same is the case with the papilionaceous or pea-blossomed plants, the umbelliferous, and several others, still these cases were all rather accidents than principles, and accordingly it happened

that here and there strange anomalies took place, which proved that the system was wrongly based, and that agreement in the number or situation of Stamens and Pistils being made essential, plants were shut out, which by every reasonable analogy ought to have been included in certain sole divisions, thus for instance, the sweet smelling vernal grass (*Anthoxanthum odoratum*) was put into the class *Dian-dria Digynia* (two Stamens and two Pistils) whilst all the other grasses range under *Triandria Digynia*; there are other similar cases. This was a state of classification so evidently imperfect as not to be tolerated any longer than until a better was established. Again the fifth class, *Pentandria*, contains Plants, which have not the remotest affinity with each other beyond that of agreeing in the number of Stamens, and it is besides so unwieldy, as scarcely to be of any use in tracing out any particular individual, thus it contains such Plants as the *Solanum*, the *Atropa*, the *Viola*, the *Ribes*, the *Hedera*, along with all the *Umbelliferous* tribe, than which nothing can be more dissimilar in all their essential characters, agreeing in one alone, viz. the Stamens.

It is abundantly evident therefore, that the artificial system of Linnæus, however valuable as a step in our progress, was calculated in some respects rather to create than to remove difficulties, and that it was necessary to lay down some more certain principles which should serve as a certain guide in our researches. This the natural system has accomplished, and it may be distinguished chiefly from the artificial by the circumstance that no one individual portion of a plant is resorted to as a criterion for fixing its precise place in the arrangement, but that every part is taken into account before that can be finally determined, so that when the plant has once been sufficiently investigated it may be accurately described and distinguished. The want of sufficient attention to the laws of analysis and affinity in the Linnæan system, has been shown in the cases above alluded to, where one of the grasses was shut out from its companions, and where plants were huddled together, that have no one quality or even appearance in common; but this was not its only, nor even its greatest defect; the Linnæan system afforded scarcely any insight into the nature, qualities or structure of plants, or whenever it did so, it was rather incidentally than as a principle, hence it became little better than a dictionary of names, and this has had the effect of deterring many from turning their attention to it, as it was looked upon as a dry, hard and mechanical study, leading, after all, to no real know-

ledge. From this, not altogether undeserved reproach it has now been entirely redeemed, as will be more especially seen and felt by those who take up the admirable works of Professor Lindley.—That gentleman divides the Science into four departments, viz. Structural, Physiological, Descriptive, and Systematic. The first and second of these were scarcely touched upon in Linnæus's time, and yet they are the only solid foundation upon which the two last can be raised. The structure and the physiology of plants, must of course be ascertained before we can fully describe and properly arrange them, yet Linnæus did little more than attempt the two last objects, and no better proof can be given of the advance that has since been made, than that Professor Lindley carries on his investigations in the order above stated, which is the only true method for arriving at any real knowledge.

The first point the student should aim at therefore is to attain to such a general view of the principles upon which the structure of Plants is based, as will enable him to determine with ease to which of the three grand divisions any individual may belong. This is not a difficult matter, as the mode of growth, and therefore of structure present such striking differences that a very slight examination will suffice. It is easy to remark for instance that certain vegetable productions, are invariably accompanied by a central pith, surrounded by one or more circles of wood, on the outside of which there is a bark; a branch of oak or beech will show this, and such Plants came under the general head of Exogens, formerly called dicotyledonous, from the seed consisting of two lobes such as the Bean or the Acorn. Again it is easy to perceive a difference from this mode of growth in such plants as the common cane, where no pith or central arrangement of any kind is visible, but where all the interior is alike intermingled; the Palms, and the common white Lily are instances of this kind, as are also the grasses, and they form the second grand division now called Endogens, formerly denominated monocotyledonous, from their seeds being composed of one lobe only. A third not less striking difference in the mode or growth of plants is afforded by those called Acrogens, formerly called acotyledonous, or plants having no seed lobes; such are the Ferns and other plants whose flowers (if they may be so called) are inconspicuous or rather invisible, whence they were denominated cryptogamous, in opposition to the others bearing visible or phenogamous flowers. The peculiar mode of growth in this division of the vegetable kingdom is from the points of its leaves, or as they are called, fronds, and a very slight inspection will enable the

student to perceive the difference in the principle of their arrangement from the other two.

With such a general view of the nature and principles of vegetable arrangement, it is easy to advance to the next step, for even this alone affords an idea, (though but a slight one) of that subdivision of plants into what are termed natural families. The next point to which I would direct the student's attention is the structure of the leaves and their accessories; here again such striking differences exist, that the slightest inspection will suffice to make them manifest, and the student will soon perceive that the primary divisions of Exogens, Endogens and Acrogens, are easily traced in this portion of vegetable structure; thus the leaves of Exogens will be found to contain all more or less of *reticulated* veins or ribs, which intersect one another in a variety of directions, whilst the veins of Endogens are universally longitudinal, running from the base to the apex of the leaves, in nearly parallel lines. Again the leaves of such Acrogens in which veins are traceable (for many have none at all) and especially the Ferns, are *forked*, and these slight variations will enable the student even without seeing any other portion of the plant, to determine at once to which of the grand divisions it belongs. Attention must next be paid to the other points in succession, such as the bracts, the stipules, the spines and prickles, the hairs, the roots, the seeds and seed vessels, the flowers, the calyxes and so on, and a very small share of assiduity will enable the student to gain such a general view of these as will enable him to go on in his course of analysis with effect in any direction, and it is not necessary that he should begin at any particular point; nay, Lindley even recommends changing the order of investigation, commencing at one time with the seed, and going on thence to the reproduction of that organ, and at another with the root or the leaf and thus tracing the mode of vegetation, for in our order of examination, certain general principles will be elicited, which will conduct the student to the various objects into which he is to inquire; and there is this advantage in being accustomed to investigate from any given point, that he is not so dependent upon circumstances; upon finding the plant in fact, in a certain precise state, it can be examined when in bud in flower or when the seed vessel alone is left.

This course of analysis of the vegetable kingdom is by no means so difficult of performance. Knowledge of the general laws of vegetable structure is by no means so difficult of attainment as has been

supposed ; both are indispensable as a ground work, for by them alone is a student enabled to prosecute his inquiries with effect. The next business is that of tracing the affinities of plants, and this becomes more easy and certain in proportion to the extent and accuracy of our previous acquirements ; the principles upon which the several natural families, and in fine the natural system itself are based, may then be ascertained, and then and not till then, can any one be said to have fairly grappled with and grasped the subject.

Certain grand leading features are now to be traced, and we presently come to divide and subdivide to arrange the umbelliferous plants by themselves, the grasses may be as readily distinguished, the composite plants answering to the Linnæan class Syngenesia, are not long in being discovered, and thus by degrees we begin to systematize by and for ourselves, and this is the true method of *theorizing*, namely by means of our own individual discoveries and observations, for the error of the older botanists consisted in their satisfying themselves with having, as they thought, succeeded in finding the right place for every plant, just as one would fix a place for a word in a Dictionary, and having accomplished that, they erected a system, which was to remain unaltered, incapable of further improvement or progress. The Natural System on the contrary is so constructed as to afford the means of a gradual approximation towards the truth, in proportion as the mass of facts and observations increases, and it resembles in this respect the Science of Chemistry, which increases in precision in the same way and by the same means. It is no valid objection to the Natural System therefore, that it has not yet attained accuracy, provided it contains a provision for perpetual improvement, this is all that can be expected, and we need not be surprised if changes continually occur in the details of arrangement, for this is unavoidable as long as the science remains in so imperfect a state as it does at present, and which considering how lately it has become an object of general attention could not well be otherwise. But I am anxious to prevent the student from theorizing, alias framing systems of arrangement too soon ; before he has mastered the general principles, and stored his mind with a sufficient mass of observations, and I am equally desirous of warning him against entertaining the notion, that the Science of Botany consists merely in framing such a systematic arrangement, be it never so correct ; the great practical value of the science does not consist in that, but rather in its ministering directly or indirectly to human welfare and happiness. For this pur-

pose the investigations must be carried on with a view rather to ascertain the qualities beneficial or otherwise that plants possess, what are their constituent parts, and how they may be made available for the objects abovementioned; to this end the laws that regulate the cultivation of vegetable productions must be investigated, and it is only after all this has been performed with some diligence and attention, that we can work with effect in this last part of the field, namely a scientific classification. How constantly the horticulturist stands in need of the information which botany, thus thoroughly understood, affords, will, I trust, have been shown (imperfectly though it be) in what has been urged above; and I now close this somewhat desultory sketch of the subject, in hope that I may have stimulated some of your readers who are horticulturists, but have not yet taken up the science of botany as a study, to enter upon so pleasing, and to them so useful, an occupation.

J. R. T.

SELECTION OF FLOWERS FOR THE PLEASURE GARDEN.

HAVING sown rather an extensive variety of flower seeds, procured from London and Paris, it will probably interest many lovers of the flower garden to be made acquainted with the result. And this is quite necessary to guide such in their purchases of seeds, as many of them are to be avoided, not being at all showy — indeed only fit for a large botanical collection.

They were all sown in the open ground, without protection, the first and second week in May, as it appeared to me that the introduction of hardy flowering plants is the most desirable object at present, and they had no farther care taken than occasional weeding.

Salvia angustifolia, *nemorosa*, and *præcox* are small flowering plants, of no value in making the garden look gay. *S. prismatica* has a handsome growth, but the flowers although of a charming blue are rather small. *S. horminum*, the red and purple topped Clary, are the prettiest annuals of this tribe, and well deserve a place in the flower garden.

Cleome pentaphylla and *spinosa*. This is an elegant tribe, but *pentaphylla* is rather small in comparison to *spinosa*, which grows about four feet high, and bears a beautiful spike of white, sometimes pinkish, flowers; the petals range themselves on the upper side and the

stamens and pistil are protruded a considerable length on slender filaments, forming a beautiful airy group.

Collomia coccinea, a very lively flower, growing in heads of bright carmine red, rather desirable and early; the seeds have, like some of the *Salvias*, the curious property of becoming invested with vegetable mucus when moistened with water.

Coronilla securidaca, a yellow, papilionaceous flower in heads, not very showy, but interesting from the curious manner in which it folds its leaves together at sunset, somewhat like the sensitive plant; but as the leaves of *Coronilla* are much larger, the effect becomes more evident.

Enothera Lindleyana, *tenuifolia*, *bifrons*, *micrantha*, *purpurea*, *densiflora*, *quadrivulnera*, *tetraptera*, *acaulis*, and others. Of those which possess color, *Lindleyana*, *quadrivulnera* and *purpurea* are the most showy; *tetraptera* and *acaulis* are pure white; the former, like many of this tribe, only open in the evening, it becomes pink by the morning; *acaulis* is the purest and most lovely white we have ever seen.

Ipomea Boerhavia, *Michauxii*, *striata*, *luteola*, and others. *Boerhavia* is small, but flowers in profusion; it is pink, but not showy enough for most persons. *Luteola* we do not admire; the color is dingy and the blossom small. The others are well known here as the morning glory, and are truly ornamental.

Zinnia verticillata, *elegans*, *grandiflora*, and others. These are pretty well known here; the most beautiful is *elegans*, variety *purpurea*; there is another variety of *elegans* (*coccinea*) which we have seen here, of a bright scarlet color, which is certainly the finest of the *Zinnia* tribe.

Molucella laevis and *spinosa*. These are rather elegant in growth, but not showy; the calyx or cup which supports the flower is very singular and beautiful.

Loasa acanthifolia and *brionifolia*. These are elegant yellow flowers, very curious in their structure, but the plants possess one quality which must forever banish them from the pleasure garden—the whole plant is covered with hairs, which on being even slightly touched, eject a poison into the flesh, causing a painful blister, the effect of which does not pass off for several days.

Datura tatula, *ferox*, *quercifolia*. The first of these is the common weed called the Apple of Peru; *ferox* resembles it in growth, but the flower is pure white; *quercifolia* we think the handsomest flower of

the whole collection imported ; it is larger than *tatula*, measuring five inches across the mouth, white, the nerves of a fine pink, shaded with a dull purple ; the fruit is contained in a smooth capsule, and the leaf is somewhat like the oak, (*quercus*) whence its name ; the manner of growth is very elegant, and as each succeeding blossom burst through its fine calyx, we thought it more beautiful than its predecessor. We can truly recommend this as an ornament to the garden.

Stramonium, double purple, is also a very desirable flower, although, notwithstanding great care, the insects mutilated and disfigured it while yet in the bud.

Delphinium (Larkspur) *dwarf double white, red, blue*, and *Neapolitan*. These, when well grown in a rich, stiff soil, must always be considered the greatest summer ornaments of the garden. The Neapolitan we had never seen until this season ; it is very desirable, the color is rather a dull light lilac, but the spike of flowers is large and thick — it makes a great show. Soon after the seedlings show the third leaves they should be well thinned out, and when the blossom appears, all the single flowering plants must be pulled up and thrown away.

Poppy, dwarf and picotee. The dwarf poppy is well known here ; a fine display of the flowers was made at the Horticultural Society's room this season, by an amateur. The picotee is also extremely handsome, and we believe new here ; it forms a large globular, greenish white head, the numerous jagged points of the petals being tipped with a slight blush of rose color ; one plant we had was pure white with a tinge of beautiful carmine. This species does not seed very freely with us, the heads damping off just previous to the seed ripening.

Gentiana acaulis and *asclepiadea*. We should be proud if we could introduce *G. acaulis* so as to become common here ; the plant has been imported several times, but from some cause or other has never flourished ; nothing but the rare and expensive blue color called ultramarine can give an idea of the brilliancy of its hue. Aware of the difficulty of raising seedlings, yet under the impression that this would be the only means of accomplishing the above object, we soaked the seed 4, 24 hours, and three weeks in chlorine, and the same periods in water previous to sowing, in hopes of seeing it vegetate, but in vain ; however, in Europe it always takes two years before it makes its appearance, therefore we do not yet despair. *Asclepiadea* some-

what resembles the *Gentiana saponaria*, which grows commonly in swamps near Boston, but the flowers open fully, which *saponaria* never does. *Acaulis* (stemless), as its name denotes, grows near the ground. All the *Gentians* possess beauty, therefore are always acceptable in the garden.

We propose to resume this subject in our next number, and only feel regret that some of the numerous amateurs of flowers in the vicinity have not furnished us with a similar list. Much may be said of the comfort of uninterrupted domestic happiness, and the uneasy feeling at constant intrusion on the quiet pleasures of horticultural employment, yet when new plants are introduced, if they remain unknown, unseen, undescribed, they might as well blossom in the desert wild, as far as regards the general interest and diffusion of horticulture. The same may be said of rare but hardy plants; we should like to see every habitation, however great or humble, with the portals and piazzas covered by monthly and climbing roses, by the honeysuckle, the cobeia; every garden glowing with the rich dahlia, fragrant with the pink and carnation, and rendered attractive by a succession of brilliant flowers.

This can only be effected by encouraging the introduction and selection of the most ornamental species either of native or foreign plants, and making their beauty or other desirable qualities known and conspicuous. It is with this view we offer, and mean to continue, the above communication, and shall be happy to add to it the contributions of other amateurs of flowers.

J. E. T.

EXTRACTS FROM FOREIGN PUBLICATIONS.

LOUDON'S GARDENER'S MAGAZINE, for August, contains

An account of the Arboretum lately commenced at Chatsworth, the Seat of the Duke of Devonshire.

Directions for drawing trees and botanical specimens from nature, by Mr Loudon. This is a long and excellent article, with many wood cuts, which prevent our giving more than the mere title.

The next is an article by the same author, *on mixing herbaceous flowering plants with trees and shrubs*, which contains some principles on landscape gardening, directly at variance with what we have

always considered the true and modern principles for study. One is that "as a garden is a work of art, and a scene of cultivation, every plant or tree placed in it should be so placed as never to be mistaken for a tree or plant placed there by nature or accident, or as to prevent the practices of cultivation from being applied to it." We had always understood, and still think, that the true principles of landscape gardening consisted in applying art so as to form resemblances to nature, which should bear the least possible appearance of art or artifice; and that one of the greatest of modern improvements was the substitution in the garden of natural scenery for the artificial clipped hedges, the yew and other trees tortured into the monstrous shapes of peacocks and other birds, or animals. Nor can we help thinking that the background of shrubbery and forest trees is the best possible relief and contrast for the colors of tall herbaceous flowers; we most cordially, however, agree with him that every tree and plant should have sufficient room to display its whole size and contour; we also think that if thick foliage is required, it should be produced by depth of plantation, and not by crowding so that only one side of a tree has room to grow. We can explain our ideas better, by referring to several groups of Butternut (*Juglans*) trees, near Boston, which are at sufficient distance to show the whole elegance of each tree on approaching; and on entering this grove, the ground is enamelled with flowers of geranium maculatum, &c. in the spring, and with asters and golden rod (*solidago*) in the autumn; and we conceive this natural effect to be consonant with the most refined principles of taste.

The following remark we protest against, also. "Let shrubberies of flowering shrubs, such as rhododendrons, azaleas, and all peat earth shrubs, which seldom grow above four feet in height, be simply dug." We are of opinion that a peat earth bed should never be dug or stirred in any way, farther than removing weeds, and this operation should be carried on when the weeds are young, so as to disturb the surface as little as possible.

An artificial bed of peat earth is a substitute for a natural bog or swamp, and it is an excellent substitute, because that particular earth is compact and retains moisture with so much obstinacy that when kept close, a long continuance of sultry weather must prevail ere it can be reduced to a dry pulverulent state, and the roots of plants surrounded by it are kept always moist; but if this bed is dug up and turned over, so as to admit the air, or let the moisture percolate freely through it, the object of peat earth is defeated.

It is with the greatest diffidence that we express opinions opposed to those of so able and experienced a writer as the conductor of the *London Gardener's Magazine*; but we are convinced that no one knows better than he does the value of discussion and the free expression of opinion, when strictly confined to the subject, and conducted moderately and temperately.

A writer on the subject of the failure of the potato crop in Scotland, suggests the following cause of it, which experience may prove of use to our farmers here.

“But what has been done to the sets? Are some of them affected by disease or insects, and not others? In my opinion, there is no occasion to have recourse either to disease or insects. Weakness is the cause, and this weakness is produced by a slight alteration which has taken place in the mode of management; viz., that instead of potatoes being left in the ground till November, as used to be the case formerly, they are now taken up in October, to make way for wheat sowing, before the tubers are sufficiently matured to be fit for separating into sets. As a proof that the weakness thus produced is the cause of failure, I may adduce the facts that the sets of early varieties of potatoes have not been known to fail, and also, that tubers of late potatoes, when planted whole, generally succeed. In this last case the whole of the vital energy of the tuber is concentrated in one bud or shoot, (for it is seldom that more than one shoot is produced from a whole tuber, notwithstanding its number of buds) and, therefore, a plant is produced; but when these buds are separated, the proportion of vital energy assigned, as it were, to each, is so small as to be ineffective in the production of a plant.

“Perhaps it may appear to some that what is now stated is in contradiction to the theory which recommends taking up potatoes that are intended for sets before they are fully ripe; to which I can only answer that this theory may be, and I believe is, quite correct, and that the causes of failure above mentioned may be considered as owing to that theory having been carried too far.

“I shall only further add, that the evil of too early taking up may be greatly mitigated by immediately burying the tubers in pits, instead of laying them up in heaps in houses covered with dry straw, in which state they wither, and if not sufficiently matured, suffer such a diminution of their vital principle as to be unfit for sets.”

“A History and Description of the different Varieties of the Pansy

or *Heartsease, now in Cultivation in the British Gardens, illustrated with Twentyfour colored Figures of the choicest Sorts.* By J. Sinclair and J. Freeman. In Svo. numbers, monthly, 6d. each; to be completed in 24 numbers, each containing a colored figure of one select variety, with descriptions, &c. London, 1835.

“The great beauty and variety of the *Viola tricolor*, now cultivated under the name of heartsease, pansies, &c., may be sufficient excuse for the following short remarks: — The first mention I have met with of pansies, or *three faces under a hood*, (which latter is no inappropriate name) is in some manuscript papers which have passed through my hands, relating to the management and contents of Sayes Court Garden in Surrey, by the celebrated Evelyn, written in 1687, where pansies are enumerated in the list of ‘coronary flowers for the parterre and borders.’

“From that period up to about 1810 or 1812, there appears to have been little attention paid to their culture; and, perhaps, the only varieties that occurred during that period, were such as arose accidentally, and passed unnoticed, being less interesting than the original species *Viola tricolor*. So far as my information extends I believe that the following may be considered as the commencement of their cultivation in distinct varieties.

“About the period above noticed, Lady Monke, then Lady Mary Bennet, had a little flower garden in the grounds of her father, the late Earl of Tankerville, at Walton, who was a zealous cultivator of plants. In this latter garden was a figure of a heart, into which this amiable lady used to plant the varieties of pansies which she accidentally discovered growing in her father’s garden. Aided by the industry and zeal of Mr Richardson, then and still gardener at Walton, several pretty varieties were raised or discovered, and transplanted to this little parterre. In 1813 or 1814, several distinct and striking varieties were thus obtained; and these having attracted the notice of the late Mr James Lee of Hammersmith, he, availing himself of the intercourse then opened with the Continent, applied to some of his correspondents in Holland, and procured from them a large blue variety, which is still occasionally seen in the old gardens, and which, as a matter of course, was soon added to the Walton collection. Mr Reed, one of the foremen in the Hammersmith Nursery, turned his attention to the same subject; and in the course of a few years, twenty varieties were to be had at that splendid establishment. Mr Richardson was not less active in enriching the Walton collection,

both with seedlings of his own, as well as those of others ; till at last the two collections became very numerous in varieties."

On the Discovery of the Tea Shrub in India. By Dr Wallich. We extract the following :

"I have sent to Mr G. Loddiges the details of a very beautiful consignment of growing plants, which he and his worthy brother sent me lately in a *hermetically sealed* box (I may almost call it so). I wish you would make mention of this most extraordinary and novel mode in your Magazine. I have asked Mr Loddiges to send you my letter or an extract from it. — *N. Wallich.*

"The letter alluded to by Dr Wallich has not yet (July 10th) been received by Messrs Loddiges. The mode of conveying plants alluded to is that practised by Mr Ward for growing ferns, which is described at length by Mr Ward himself (X. 207). We have seen a letter from Mr Traill, the head gardener to the Pacha of Egypt, in which he states that he had received several collections of plants packed in Mr Ward's air-tight cases, perfectly safe and uninjured, which he never had done before by any mode of packing. In short, there can be no doubt that Mr Ward's mode is decidedly superior to every other hitherto adopted ; and that by it living and growing plants may be sent either by land or sea from any one part of the world to any other part."

"*Gladiolus natalensis* has remained uncovered all last winter, and is now growing with great luxuriance, equal, if not better, than those bulbs of it which were taken up in the usual way."

"*American Magnolias in China.* In reply to the query p. 325, I am able to say that Mr Beale has, in his garden at Macao, a tree of *Magnolia grandiflora*, which, when I saw it last, in 1830, must have been twenty feet high. From this tree, Mr Beale has struck off several branches by the Chinese mode of abscission, and distributed the young plants to some of the Chinese merchants at Canton, and to some of the inhabitants of Macao. He has done the same, also, with a smaller tree, which, from the very ferruginous appearance of the under side of the leaf, I think was *Magnolia g. elliptica*. Besides these he had received from America *Magnolia glauca*, and a fourth variety which, if I remember right, was *M. auriculata*. The two latter plants had then been but lately received ; but, as they were in good health, I have no doubt they have also been propagated and distributed, and now are, as well as the two former, established in China."

HARRISON'S HORTICULTURAL CABINET,—For August, contains colored engravings of five varieties of Fuchsia. Also an article on watering plants in pots, which we extract entire as it coincides with our ideas, and is likely to be serviceable here.

I. EVERGREENS : *and of these such as are succulent, as Pelargoniums, Geraniums, &c. Such as are ligneous, as Camclias, &c.*

The succulent class of Evergreens require a liberal supply of water during their growing state, (particularly such of them as bloom from the spring to the beginning of autumn,) but a very scanty supply during the cold months. Geraniums and Pelargoniums for instance; as soon as the rigor of winter is past, say towards the middle or end of March, when the generality of them are shooting up for bloom, should be watered on the surface of the soil at first three or four times a week; then, in another month or six weeks, if warm weather, every morning. During the summer they will require water in very hot weather morning and evening; after they are out of bloom, giving it with the rose of the water-pot over their leaves as well as on the surface. In the autumn, the water must be materially lessened; and from the middle of December, until the beginning or middle of February, it is scarcely possible (if they are kept during those months in frames without having fire heat,) to keep them too dry. During that period they will not require water more than once in a fortnight; and then presuming them to be in pots not exceeding four or six inches in diameter, they will not require more than about two table-spoonsful of water at a time. I am minute as to this family, because it is one of the most beautiful and most generally cultivated by Amateurs, who, many of them not having the advantage of a greenhouse and fire heat, find their Geraniums damp off and become mouldy, and die soon after they are put into frames at the approach of winter. This arises from over watering, and nothing else. If, during the winter, they are watered sparing as above directed, *and air is given every day when the atmosphere is above freezing point*, by elevating the lights a few inches so that no rain can touch the plants, Geraniums may be preserved very safely in frames during winter, taking care to cover the lights with mats or straw during frost. The material things for Geraniums in winter are plenty of air, light, and sun. Whenever in Geraniums, the leaves wither, turn black and mouldy, that proceeds from over watering; the only chance of saving such a plant is to take off all decayed leaves, and put it into a warm room for a week, so that

the soil in the pot may dry as speedily as possible. Keeping them short of water (added to the confinement of the frames) will cause many leaves to turn yellow and drop off: but in this class of plants that circumstance is not of material consequence, because in the spring, if the stems and roots are sound, vigorous shoots covered with luxuriant foliage will come forth. But if the plant is over watered, the succulent stem being saturated with moisture, which the cold prevents it from throwing out by evaporation, the fibres of the stem decay and its texture is destroyed. The same observations apply to all succulent Evergreens.

With respect to the ligneous class of Evergreens, they do not require so large a quantity of water during summer as the succulent, (although they must at that season be liberally supplied;) but during the winter months they require more in proportion than the succulents. The great point in ligneous Evergreens, is to have a good drainage at the bottom of the pot, and to plant them in a sandy soil, so that the water may pass freely through as soon as it is given to the plant. In winter these plants will require water in a small quantity, perhaps once a week or ten days in the frame when there is no frost. The Camellia, Rhododendron, Acacia Armata, and Corrœa Speciosa, may be instanced as families to which these observations apply.

It need probably be scarcely necessary to observe, that Evergreens should never be allowed to stand in a pan which would contain the surplus water, so as to keep the soil at the bottom of the pot in a saturated state.

2. DECIDUOUS PLANTS: *or such as lose their leaves annually, as Fuchsias, &c.*

From the time that this class of plants drop their leaves in the autumn, until they shoot again in the spring, they require no water, or at most, a very small quantity once a month during that period, this also is the only proper season to re-pot them. As soon as they begin to shoot in the spring, water should be given to them, (so as just to moisten the soil in the pot,) and gradually increased until the leaves are developed; after which they should be treated as ligneous Evergreens during the spring and summer months. Many deciduous plants are very beautiful; and as they do not require light in the winter, they may be protected from frost in a cellar or vacant room without a fire, which is a great convenience to an Amateur.

3. HERBACEOUS PLANTS: *as Auriculas, Carnations, &c.*

This class requires to be watered much on the same principle as the

succulent Evergreens ; but during the autumn and winter months, particular care should be taken not to allow the water to get into the centre of the plants, or in the socket at the base of the leaves : because, unless it quickly evaporates, the water will there become stagnant and rot the stem of the plant. Many herbaceous plants with thick large foliage, Auriculas in particular, should in *very hot* weather be *shaded*, and allowed to have only the morning sun.

To this class belongs the beautiful family of Chinese Chrysanthemums, which as it requires rather a different mode of treatment from most of the class, should be particularly mentioned. From the time the warm weather commences in the spring until the end of autumn, it is scarcely possible to over water them. During dry hot weather they should be freely watered, both on the surface of the pot and over the leaves, even when the sun is on them, twice a day at the least. After they have bloomed, they require but little till April.

4. BULBOUS ROOTED PLANTS.

Many of this class of plants vegetate and bloom during the autumn, winter, and spring months. At whatever season of the year a Bulb vegetates, it should be planted in moist soil, but very little water should be applied until it has shot up an inch or two, then the water should be given more freely and increased in quantity as the plant grows. When in full bloom the water may be lessened in a slight degree, taking care, however, to keep the soil constantly moist, in order the longer to enjoy the beauty of the flower. As soon as it is out of bloom, water must be *freely supplied* in order to enable the leaves to be matured, and the exhausted bulb to become thereby re-established. Most young Florists err on this subject. Upon the growth of the leaves after Bulbous rooted plants have bloomed, depends the formation of the flower bud for the ensuing year ; therefore, water should be given freely until the ends of the leaves turn yellow, which in most of the common Bulbs, as Hyacinths, Narcissus, &c. will be in from one to two months after their bloom. From that period the water should be gradually lessened, and in a few days altogether discontinued. Then the pots should be laid on their sides in a shady situation, where the soil in the pots will gradually dry, and the leaves and fibres of the roots wither ; afterwards the roots may be taken up and preserved, to be replanted at the proper season.

5. AQUATICS.

But few of this class of plants enter into the Amateur's green house or frame, therefore, they require but a short notice. The *Mimulus*

rivularis is one of the most beautiful. This plant will grow luxuriantly during the summer months whilst in bloom, if the pot is placed in a China bowl filled with water, when it makes a very pleasing object in a room; the *Mimulus moschatus* is also very desirable both for its foliage and scent. During the winter months, most Aquatics have but little foliage on the surface of the pots; they must then be kept quite out of the reach of frost, and receive but little water, still the soil should be kept moderately moist. By keeping the soil in a pot thoroughly moist, I mean that it should contain as much moisture as it can retain, so as to allow of the soil being crumbled between the fingers without sticking to them.

One very material thing with reference to keeping the soil in a pot in a regular state of moisture throughout, is to take care the hole at the bottom of the pot is large enough. I always enlarge it in every pot to about double the size it is made by the potter; this is easily done by striking the bottom of the pot with the edge of the potting trowel.

B. M.

Pentonville, May, 1835.

PAXTON'S HORTICULTURAL REGISTER, for August, edited by J. Main, contains among other articles one on the Mildew of Plants, from which we make the following extracts:

"It has long ago been discovered that strong soap-lather applied to the leaves or shoots of plants infected with the fungus called mildew, destroys that parasite, and restores the plant." On this, the following queries are raised—

"1. Which quality of the soap is it that is thus effectual?"

"2. Would a solution of soda answer the same purpose?"

These are followed by a long detail of experiments, the result of which is that a solution of soda is injurious, and that the remedy exists in the chemical union of the ingredients of soap.

Among the numerous horticultural exhibitions, two rare and beautiful plants are named as having attracted much attention, *Pentstemon speciosus* and *Eucalyptus pulverulenta*.

Also, of thirty seedling *Calceolarias*, one of a pure white was considered the rarest; several were of a fine scarlet, dark purple, and cream-colors, some were variegated; the flowers of most were large.

A new seedling *Pelargonium* (geranium) received the appellation of *Enchantress*, from its beauty—the two upper petals being black, the lower ones pure white.

Also, a delicate white seedling *Thunbergia*, from *T. alata*, was much admired.

THE BRITISH FLOWER GARDEN, for August, by D. Don, contains colored figures with descriptions of

Pæonia moutan, var. *punicca*. Polyandria digynia and ranunculacæ. A truly magnificent seedling of *P. m. papaveracea*, raised in Sir A. Hume's garden at Wormleybury. It is most probably a seedling from Anneslei, as it agrees with that variety in habit, and in the uniform rich color of its petals. The flowers are, however, larger than in that variety, with the petals more numerous, more deeply cut, and of the color of carmine. It requires the same treatment and culture as the other varieties from papaveracæ.

Viola cucullata, the hooded violet. Pentandria monogynia and violacæ. This very pretty violet is quite common in the United States. We have frequently gathered it in the vicinity of Boston, and struck with its beauty removed several plants into our garden three years ago, where they flourish well. Mr Don says they delight in wet places and a clayey soil; this is true, as they are generally found in such spots, yet those we have transplanted are in a dry place, and are equally vigorous in flower with what are gathered in swamps. It is called hooded, from the leaves being turned in, or cucullate at the base. The flower is large, blue, and marked with dark blue veins inside, the lateral petals are copiously bearded. Mr Don enumerates and describes 170 varieties of *Viola*, not including garden seedlings.

Eschsholtzia crocea, saffron-colored Californian poppy. Polyandria monogynia and papaveracæ. The principal difference between this and the variety now well known here, is in the color, this being a dark, bright saffron-color; the botanical difference is, that in this the point of the calyx is longer, and the apex or end of the peduncle (flower stem) is more expanded. It is, like the other, a hardy bien-nial.

Cratægus Mexicana, Mexican hawthorn. Icosandria digynia and pomacæ. A new, distinct and beautiful variety, introduced by Mr A. B. Lambert, from the high table lands in Mexico. It is found to be quite hardy in England, and may be increased by budding on stocks of the common hawthorn.

THE BOTANICAL REGISTER, for August, by John Lindley, contains but few plants of striking beauty. Three are orchideous plants,

one of which, *Dendrobium cupreum*, from the East Indies, sent by Dr Wallich, is rather handsome; the others are of great interest only to the botanist.

Lasthenia glabrata. Syngenesia polygamia superflua and compositæ. A yellow flower, from California, somewhat in the style of a small sunflower; not likely to become very popular.

Dyckia rariflora. Hexandria trigynia and bromeliacæ. A stove plant of the pine apple tribe, from the Serra of Villa Rica, Brazil, named after the Prince of Salm Dyck, whose valuable collection of succulent plants was mentioned in our last number.

Empetrum rubrum, red crowberry. Diœcia triandria and empetræ. A small hardy evergreen shrub, with inconspicuous flowers.

Eutoca divaricata, straggling eutoca. Pentandria monogynia and hydrophyllæ. A small, light violet flower, from California, not very showy. *E. multiflora* is in gardens here, but although preferable to this, is not very likely to become a favorite.

THE BOTANICAL MAGAZINE, for August, by W. J. Hooker, contains colored figures and descriptions of

Rhodendron arboreum, hybrid variety *Altaclerensis*. Decandria monogynia and ericæ. A very splendid new seedling rhododendron raised at Highclere.

Hakea ferruginea. Tetandria monogynia and proteacæ. A handsome, free-growing greenhouse shrub, from New Holland.

Hoya Pottsii. Pentandria digynia and asclepiadæ. *Hoya carnosâ*, with its dark fleshy leaf, is well known in every greenhouse here, and has, we think, the advantage in beauty over *H. Pottsii*, which is a native of Madagascar, from whence a single leaf was sent to Mr Sabine in London, who succeeded in raising a plant from it.

Orchis tephrosanthos, military orchis. Gynandria monandria and orchidæ. This is larger than the English military orchis; it is a rare plant, and takes its common name from the resemblance of the labellum or lip to a man with a military cap. We have twice endeavored to import some of the most curious of this tribe, that we might have the pleasure of exhibiting them, and perhaps raise a taste for them here, but in neither instance did the plants arrive alive.

Erica recurvata, recurved heath. Octandria monogynia and ericæ. A beautiful species of this most elegant tribe.

Vaccinium albiflorum, blue bilberry. Octandria monogynia and vaccinæ. Lately received from this country at the Botanic Garden,

Glasgow. This is the *Vaccinium corymbosum* of Dr Bigelow's *Flora Bostoniensis*, and is quite common in the swamps in this vicinity called the large bilberry, grows six or seven feet high, but flowers when much smaller.

Vaccinium cæspitosum, tufted bilberry. Octandria monogynia and vaccineæ. This is a small variety, mentioned by Michaux in his work on the American flora, but does not seem to have been found so far north as Boston.

J. E. T.

ANNUAL EXHIBITION OF THE MASSACHUSETTS HORTICULTURAL SOCIETY.

THE Annual Exhibition of Fruits and Flowers, of the Massachusetts Horticultural Society, took place on Wednesday the 16th and Thursday the 17th inst. ; and the place selected was the ODEON, situated in Federal street, in Boston. This edifice, which was formerly known as the Federal street Theatre, has lately been taken on a long lease by a musical society, from whom it has received its present name of Odeon, a name signifying a place where *odes* are sung. It has also been transformed to a place of public worship : the stage having been converted into an altar ; at the extreme end of which is the fine organ. The area having on this occasion been cleared, formed, by a slight but new arrangement, a magnificent Hall, of lofty height, and spacious dimensions, with a skylight in the centre. The gallery leading from the vestibule, being closely studded on either side with pines, like a forest, formed a dark but pleasing avenue of entrance.

The fruits which were on this occasion exhibited, were altogether uncommonly fine, and of kinds and of qualities superior to those of former years. And the display of the flowers and the fruits, and the skilful arrangement of the whole, in all its parts, produced an effect confessedly surpassing anything of the kind before witnessed.

We remarked that the exhibition, and by far the most invaluable specimens and varieties of flowers, and more especially of fruits, consisted of *new kinds*, in very great proportion ;—or, of those kinds mostly which ten or twelve years ago, were unknown to our country, even in name. Thanks to those enlightened individuals, who with untiring zeal have ransacked earth, recalling home to their country all that might serve to adorn, and all that might be eminently useful, for trial in our climate, and on our highly favored shores.

The days of exhibition were unusually fine, and the concourse of visitors very numerous, both from the city, and from various and remote parts of the country.

On the second day, a discourse was delivered at the Odeon, by Professor J. L. Russell, of Salem.

The following is the account of the

EXHIBITION OF FRUITS.

By E. Vose, of Dorchester, President of the Society.—Pears : Bartlett, Passe Colmar, Tillington, Urbaniste, Wilkinson, Cushing, Capiaumont, Marie Louise, Lewis, Mouille Bouche, or Verte Longue. Peaches: Grosse Mignonne, Early York.—Melons: Persian Muskmelon, Green fleshed Cantaloupe. Also a basket of various kinds of fine fruit.

R. Manning, of Salem.—Pears: Summer Rose, Bowdoin, Raymond, Saunders' Beurre, St Ghislain, Autumn Superb, Ronville, Buffum, Cushing, Verte Longue, Lowrie's Bergamott, Washington, Popes' Scarlet Major, Julienne.—Plums: Breevort's Purple Bolmer, Late Green Gage. Apples: RambourFranc, Alexander, Lyseom, New American Crab.

Samuel Philbrick, of Brookline.—Pears: Bezi Vaet, Andrews, Capiaumont, Colmar Souverain, Verte Longue, Wilkinson, Washington, Seckel.—Rareripe Peaches.

Nathaniel Davenport, of Milton.—Chelmsford Pears; Snow Peaches.

A. D. Williams, of Roxbury.—Pears: Capiaumont. Apples: Porter, and three handsome varieties of the Red. Peaches: Golden, Purple Clingstone.

Samuel Downer, of Dorchester.—Pears: Bezi Vaet, Napoleon, Beurre Diel, Fulton, Bleecker's Meadow, Capiaumont, Lewis, Andrews, Urbaniste, Cushing, Heathcot, D'Arenberg, which has sometimes been confounded with the Gloux Moreceau, St Ghislain, Lowell, Williams' Bonchretien (*Bartlett*), Catillac, Iron Pear, Beurre Knox and branches of the same, Seckel and branches of do., Crassanne, Golden Beurre of Dr Holbrook. Apples: Fine Red, Old Pearmain, Pumpkin Sweet, Porter, Ran's Horn (*fine red*), Fall Pippin, Red Siberian Crab and Yellow Siberian Crab, with branches of both varieties, Lady Apple, Nonsuch Winter Sweet.

Joshua Gardner, of Dorchester.—Apples: Fall Pippin, and branches of Siberian Crab. Pears: Seckel.

Marshall P. Wilder, of Dorchester.—Williams' Bon Chretien (*Bartlett*), Bergamotte. Apples: two varieties, both fine. Melons: True Persian Housanie Musk Melon (striped, the seeds from the London Horticultural Society, and believed to be the first of the kind produced in the country), Lord Gardner's Green fleshed Muskmelon.

John A. Kenrick, of Newton.—Pears: Seckel, Williams Bon Chretien (*Bartlett*), Chelmsford, Beurre Knox. Apples; York Russets, and some other kinds. Peaches; Alberge, Red Rareripe, Sweet Water, Cool-edge's Favorite.

John Mackay, of Boston, for Henry Flagg, of Weston.—Apples: 4 baskets of Hawthorndean, beautiful. Pears: 4 baskets of Seckel, 2 do. of Heathcot.

Michael Tombs, of the Faneuil Hall Market.—Pears: Hannas, a fruit which has never to our knowledge been exhibited and believed to be a native, much like the St Michaels, but to appearance more oblong, and of larger size; Cushing, from the original tree, which in a dry and gravelly soil produces from sixteen to twenty bushels this season.

Madame Dix, of Washington street, Boston.—Pears: Bon Chretien, Dix, Old St Germain.

Dr S. A. Shurtleff, one of the Vice Presidents of the Society, Pemberton Hill.—Pears: 5 baskets of St Michaels raised in his garden in the city, Rousselette de Rheims, Fall Bergamotte, Gansel's Bergamotte. Apples: High top Sweeting. Grapes: 4 baskets of Chasselas.

Dr Zabdiel B. Adams, of Boston. Pears: Seckel, St Michael. White Imperial or Yellow Egg Plum.

William Oliver, of Dorchester.—St Ghislain, Wilkinson, Broca's Bergamotte, Williams' Bon Chretien (Bartlett). Apples: Chataigne or Chesnut apple. Melons: Cantaloupe, Persian Muskmelons.

E. Train, of Weston.—Apples: a specimen resembling in exterior the Alexander.

R. & E. Marsh, of Quincy.—Pears: Cushing; specimens about as fine as those which were exhibited the Saturday previous, 4 of which weighed 21 ounces.

S. Phipps, of Dorchester.—Pears: Williams Bon Chretien (*Bartlett*) Seckel.—Apples: Fall Pippin, Spice apple.

E. Bartlett, of Roxbury, one of the Vice Presidents. Pears: Bartlett or Williams' Bon Chretien, Capiaumont. Apples: Maiden's Blush, Ribston Pippin. Plums: Purple Gage, New Gage. Peaches: some fine specimens.

Dana & Norcross, of the Fancuil Hall Market.—Pears: Williams' Bon Chretien, Cushing, Harvard. Peaches: Cooledge's Favorite. Other baskets of pears and fine fruit.

William Worthington, of Dorchester.—Capiaumont, Monsieur Jean, Warden, Minot, Rousselette de Rheims, Seckel, St Michael, Williams' Bon Chretien or Bartlett, Native Red Cheek, Pound pear, and several other kinds. Apples: Ladies' Delight, Carhouse.

Richard Ward, of Roxbury.—Roxbury Russets, growth of 1834, Sweet apples. Pears: Bon Chretien Williams or Bartlett, Seckel. Peaches: Cooledge's Favorite, Red Rareripe, Yellow do.

Charles Stone, of Watertown.—Peaches: Yellow Rareripe, Stone's Favorite, in all 11 baskets.

Amos Bemis, of Waltham.—Peaches: Carolina Rareripes.

Mrs Deuch, of Derne street, Boston.—Yellow Rareripe Peach.

E. M. Richards, of Dedham.—Pears: Verte Longue, Harvard, Chelmsford. Apples: Red Juneating, Benoni, the last always fine; Summer Pearmain, Orange Sweeting.

B. V. French, of Boston.—Pears: Williams' Bon Chretien or Bartlett, Cushing, Wilkinson. Apples; Hawthorndean, Ruggles' apple, Downton Golden Pippin, Native Sweeting, Kerry Pippin, Yellow Bellflower, Dutch Codlin. Grapes: Morillon Noir.

Mr Slack, of Roxbury.—Pears: Bartlett, Andrews, and another variety. Apples: a large and handsome variety. Peaches, 2 baskets.

G. Pierce, of Charlestown.—Apples: 3 baskets of Porter. Pears: 3 baskets of Andrews.

William Dean, of Salem.—Pears: Johonnet, 2 baskets; and some fine Grapes from his Grapehouse.

William Kenrick.—Pears: Beurre Colmar d'Automne, a new, valuable, and most productive variety.

Messrs Hovey.—Pears: Johonnet, Williams' Bon Chretien or Bartlett; also, peaches and nectarines raised in pots.

P. May, of Boston.—Pears; Golden Beurre.

S. Sweetser, of Cambridge.—Pears: Bon Chretien.

Cheever Newhall, of Dorchester.—President peaches.

David Hill, of West Cambridge.—Peaches: Lemon Rareripe, Orange peach.

Wm. Gridley, of Boston.—Plums: a limb of beautiful fruit of the Magnum Bonum, a kind suitable only for preserving and for show.

Samuel Heath, of Roxbury.—A basket of beautiful Andrews pears.

E. W. Hayward, of Mendon.—A basket of fine peaches.

Mrs King.—Two baskets of fruit.

Mrs Timothy Bigelow, of Medford.—Some specimens of peaches, very fine.

Mr Timothy Bigelow, of Medford.—Bon Chretien pears.

William Wales, of Dorchester.—Black Hamburg grapes.

Thomas Mason, of the Charlestown Vineyard. Peaches: Royal George, Bellegarde. Nectarines: Elruge, Brugnion, a native, both kinds very beautiful. Grapes: Chasselas or Sweetwater, Black Hamburg, of the second crop.

Benjamin Seaver.—Sweetwater grapes and peaches.

Jacob Tidd, of Roxbury.—Grapes: 2 bunches of Regner de Nice, very large, one weighing 2 3-4 lbs. and the other 3 1-2 lbs.; also, three bunches of Black Hamburg, one weighing 2 lb. 6 oz., another 2 lb. 15 oz. and another 3 1-4 lbs.

Joshua Child.—Grapes: Morillon Noir.

Benjamin Guild, of Brookline.—Plums: White Gage. Grapes: Black Hamburg, raised under glass, but without fire, Sweetwater, raised in Brookline, in the open air, on common trellis; all large and fine.

John Arnold, No. 99, Cambridge street.—Sweetwater, raised in open culture in the city.

Charles Taylor, of Dorchester.—A large basket of Black Hamburg grapes, very fine.

Joseph Baleh.—Pears: Green Catharine, and another for the Cushing. Apples: Benoni, and a yellow variety from England. Twice bearing red raspberries. Fine specimens of peaches. Grapes: Black Hamburg, White Frontignac.

T. H. Perkins, from his magnificent and spacious glass-houses in Brookline.—Peaches: Noblesse, Early York, French Gallande, Grosse Gallande; also, red Roman nectarines, all very beautiful. Grapes: White Passe Musque, Black Lombardy, White Sweetwater, Black Frankendale, White Muscat of Alexandria, Black Hamburg, White Syrian, Black St Peters, White Frontignac, Black Frontignac, Grizzly Frontignac, Black Cluster or Neunier Barcelona Long White. These were beautifully arranged in clusters of different colors alternate, and with a fine effect. Such a variety of the superior kinds has never been displayed, we believe, at any former exhibition. All were grown by the skill of Wm. H. Cowing. From the same source a rare and new variety of squash was sent for exhibition.

Samuel Phipps, of Dorchester.—Specimens of Valparaiso squash; also, Autumnal Marrow do., and Egg Plants.

Dennis Murphy, of Roxbury.—Lima squash; also, fine specimens of the purple and white Egg Plants.

Next to the altar, the end of the centre table was graced by a large and beautiful Orange Tree, loaded with its large and golden fruit, intermixed with others unripe, and in every stage of their growth. This was from the green-house of the Hon. John Lowell.

For the Committee,

WILLIAM KENRICK.

REPORT OF THE COMMITTEE ON FLOWERS AND PLANTS.

Col. T. H. Perkins, Brookline. A handsome frame work of flowers, on which the grapes from his houses were suspended: also, a specimen of the flowers of *Phaseolus caracalla*, a rare greenhouse plant of singular appearance and delightful fragrance.

Hon. John Lowell, Roxbury. A splendid Orange tree, laden with fruit; the Sweet Lime tree, an exceedingly rare plant; a fine specimen of the elegant *Gomphocarpus*; *Gloxinia maculata* and *speciosa*, *Plectranthus fruticosus*, *Justicia picta*, *Begonia argyrostigma*, *Ardisia solanacea*, with many other ornaments of the greenhouse; and amongst a variety of cut flowers were the stately *Canna speciosa*, and the rare *Strelitzia regina*.

W. Pratt, Esq., Watertown. A magnificent collection of Dahlias, with a very liberal donation of cut flowers.

Thomas Lee, Esq., Brookline. Two elegant vases, containing cut flowers, amongst which were *Calandrinia grandiflora*, *Linaria genistifolia*, *Lupinus mutabilis*, *Helenium autumnalis*, *Argemone Borelayana*, *Thunbergia alata*, *Maurandia Borelayana*, and many others.

Mrs Norcross, of Boston. Several fine plants in pots, amongst which were *Polianthus tuberosa* (the Tuberoze), Myrtle-leaved Orange, *Begonia Evansiana*, and others.

H. A. Breed, Esq., Lynn. A large and fine bouquet of cut flowers.

Hon. E. Vose, Dorchester. A large quantity of cut flowers.

M. P. Wilder, Esq., Dorchester. A very fine and numerous collection of Dahlias, amongst which the most conspicuous for beauty and successful growth, were Countess of Ponza, Lord Chichester, Polyphemus, Richardson's Alicia, Brown's Ophelia, Belladonna, Countess of Liverpool, Jason, Negro boy, Agrippina; also, a vase of about forty varieties of beautiful autumnal roses, including the celebrated Palavicini and the Triomphe de Bollwiller, a large donation of cut flowers, and many rare exotic plants in pots.

S. Phipps, Esq., Dorchester. *Celosia cristata*, and several other beautiful plants in pots, with a fine specimen of *Solanum melongena*, the Egg plant.

J. F. Priest, Esq., Boston. A large and magnificent plant of the *Salvia splendens*; double-flowering Pomegranate, and several others.

Mr Thomas Dunlap, from the garden of W. G. Buckner, Esq., Bloomingdale, N. Y. A fine collection of Dahlias, the most beautiful of which were Wilmot's Superb, Granta, Paroquet; Diadem, a seedling raised by him, in the style of Countess of Liverpool, and Roscoe, another fine seedling, also raised by him.

E. M. Richards, Esq., Dorchester. A yellow seedling Dahlia of very great merit, raised by him.

W. Worthington, Esq., Dorchester. A considerable number of bouquets of cut flowers, containing, with others, some remarkably fine specimens of China Aster.

J. L. L. F. Warren, Esq., Brighton. A fine collection of Dahlias, with several beautiful bouquets.

J. Crane, Esq., Boston. Two fine plants, in pots, of *Helianthus giganteus*.

Mr S. Walker, Roxbury. A fine bouquet of cut flowers, with a choice collection of Dahlias; the most brilliant in color and perfect in shape were Queen of the Dahlias, Miss Pelham, *Denisii*, Springfield Rival, Tyso's Matilda, Groomsbridge's Matchless; also, a small but elegant group of seedling Heartsease, (*Viola*).

Botanic Garden, Cambridge, under the direction of Mr Carter, the following plants in pots:—*Banksia serrata* in flower, *Eugenia jambos*, *Callistemon lanceolata*, *Eleagnus*, *Melaleuca*, *Clerodendron*, *Protea argentea*, *Acacia falcata*, *Aster argyrophyllus*, *Laurus indica*, *Passiflora alba*, *Diosma*, *Gordonia lasianthus*, *Ballota*, *Fuchsia tenella* and *Thomsonia*, *Calothamnus quadrifida*, *Rhododendron*, and others; also, a very fine collection of Dahlias, the most prominent of which were Wells's white, Amanda, Belladonna, Queen of the Dahlias, and a seedling of considerable beauty, raised by Mr Carter.

Mount Auburn Garden, under the direction of Mr Russell. A profusion of cut flowers.

W. Kenrick, Newton. Several beautiful plants in pots, including two fine specimens of *Morus multicaulis*, with a large quantity of cut flowers.

J. A. Kenrick, Newton. A large quantity of cut flowers.

Messrs Winship, Brighton. A large quantity of cut flowers, with two magnificent plants of the Cockscomb, *Celosia cristata*.

Lancaster Botanic Garden, under the direction of Mr Jos. Breck. A numerous and matchless collection of Dahlias; the most striking for beauty and shape were Village maid, Thorburn's seedling from Widnall, King of the Whites, Transcendant, Colvill's Perfecta, Widnall's Jason, Queen of the Yellows, Wells's Royal Lilac, and Margaret's Favorite, a beautiful seedling, raised by Mr Breck.

Messrs Hovey, Boston. A very choice and brilliant collection of double China Asters, embracing twelve distinct kinds, with several very fine Dahlias, the most conspicuous for beauty both of shape and color were Lord Liverpool, Negro boy, Cassina, Prince George, Widnall's Adonis, *Picta formosissima*; also, several bouquets, remarkable for variety of flowers and elegance of arrangement, containing *Gladiolus natalensis*, *Zinnia violacea* var. *coccinea*, *Euphorbia variegata*, Dahlias, *Phlox roseum*, *glomerata*, *cordata*, *Wheeleriana*, *Americana*, *Solidago altissima*, with a quantity of cut flowers.

Mr Sweetser, Boston. A superb collection of Dahlias, amongst which the finest were Alba fimbriata, and the King of the Yellows; several beautiful bouquets, and a fine specimen of *Rosa Lamarque*, one of the most delightful and fragrant of the tribe.

Mr D. Murphy, Roxbury. Many greenhouse plants; amongst them were a large *Myrtus comamnis* with fruit, *Cyclas revoluta*, *Viburnum tinus*, Orange trees, *Calla Ethiopica*, many bouquets and cut flowers.

John Arnold, Cambridge. A variety of plants in pots.

J. D. Williams, Boston. A variety of plants in pots; among them were the Silver-edged Holly, the Irish Yew, and the Laurel.

W. Wales, Dorchester. A fine collection of cut flowers and bouquets, in one of which was the beautiful and fragrant Yellow Tea Rose.

S. H. Weld, Esq., Roxbury. Dahlias and cut flowers.

B. P. Winslow, C. Newhall, J. Richardson, N. Davenport, J. Gardner and Mr Farnsworth. Cut flowers.

The open weather has produced a very fine season for dahlias. The show of these flowers at the Horticultural Society's room, on Saturday, August 26th, was even superior to the exhibition recorded above. A specimen from M. P. Wilder, Esq., of Richardson's Alicia, surpassed all we had hitherto seen in beauty. Mr Carter, of the botanic garden, amongst many others, brought a very fine flower of Levick's Incomparable, dark petals with white tips. Mr Walker's and Mr Sweetser's collections were not far behind. Hon. John Lowell sent a superb specimen of *Pancreatum speciosum*, the reward of the care and attention of some years.

HORTICULTURE NEAR BOSTON.

THERE appears to be an increasing taste and spirit in horticultural pursuits throughout the Union — a considerable thirst for the beauties and novelties of Flora, and the bounties of Pomona. In these, the capital of Massachusetts seems to keep pace with her sister cities, and we have been much gratified during a recent visit to several of the public as well as private establishments near Boston, with observing the vigor of many new plants imported this spring from various parts of the world.

Few persons are aware of the anxiety, trouble, and risk of loss attending the importation of plants from foreign countries, and the adaptation of their habits to this climate, particularly by nurserymen, who have to make a profit, either by the resale, or by the more tedious process of propagation. Many plants which meet with a ready sale in Europe, and therefore acquire a great and attractive name, are on arrival found to possess elegant but small flowers, or are perhaps mere botanical curiosities, whose beauty does not yet attract much attention here, as there are fewer scientific collections of plants; others of the most showy species are of such tender habits that it is only after repeated trials and losses, that a short and favorable voyage permits their arrival alive; such specimens, therefore, often inflict a total loss on the importer.

We have been led into these remarks to illustrate our first position of the increase of taste for these pursuits, without which we are certain Messrs Winship would not have ventured on the extensive importation we observed in healthy vegetation during our visit to their nursery. These gentlemen seem determined that no exertion on their part shall be wanting to place their establishment on a par with any other in the Union. There is an air of business, of anxiety for accuracy in naming and knowing the nature of every fruit tree or plant, (and the stock and variety is very considerable on the premises) which pleased us much. It would be forming a large catalogue, to give a list of all we saw, but a fine specimen of *Lagerstræmia indica*, in full bloom, was very attractive; this plant, with the varieties *Poinciana*, are the great ornaments of the West India gardens. The collection of heaths, and of the woody plants, including a very fine *Epacris grandiflora*, were in good health; their extensive border of hercaceous plants was filled with floral glories. When the improvements in that part of the grounds contiguous to the rail-road are completed, the *coup d'œil* presented to the passengers in the cars, when just emerging from under the bridge, will be very striking: on the left will be a deep ornamental bank of flowers, kept in a constant glow of various colors, terminated by their romantic moss house, now covered with the beautiful *Cobea scandens*; on the right will be presented an ornamental cottage, erecting by Messrs Winship, with apartments for the purpose of affording shelter to parties waiting the arrival of the rail-road cars. The piazza surrounding this neat structure will be decorated with climbing roses, honeysuckles and other plants; these, in the full splendor of bloom, will produce a most delightful effect, particularly as the contrast between this and the few preceding miles, which are very barren, is suddenly introduced. We feel great gratification at every ornamental addition to Boston or its vicinity, and of course none please us better than horticultural ones; there is no doubt that the taste and liberality evinced in these improvements will attract much attention, and thus become the source of increased business to Messrs Winship's establishment.

We also visited the Cambridge Botanic Garden, which is under the direction of Mr Carter, a very experienced cultivator, who seems to succeed admirably with every plant he undertakes. The Dahlias were in uncommon splendor; the collection comprises almost every new variety from Europe, with most of the old ones which have retained their celebrity and beauty; that named Miss Pelham struck

us as a very beautiful flower. The most attractive plant to us was *Hedychium gardenarium*, one of the Scitamineæ, with a most fragrant spike of pale buff flowers, in the finest perfection. *Eugenia Jambos* had many clusters of fine fruit on the eve of maturity. This garden contains a most valuable collection of plants, many of them the fruit of Mr Nutall's exertions, and is kept in excellent order. When botanical studies have attained that repute here which they now deserve, and to which they are fast hastening, this garden will become the resort and source of pleasure to all who are blessed with a taste for such exercises of the intellect. A catalogue with notices of the specimens now in this garden, would be highly interesting and instructive.

We had also the pleasure of passing through the grounds of Mr J. A. and Mr W. Kenrick, who have adjoining nurseries in Newton. Both these gentlemen have recently made considerable improvements on their grounds. In those of Mr J. A. Kenrick, we were much struck with a large square inclosure formed by a thick hedge of cypress trees about six feet high, clothed with foliage to the ground. These inclosures are in every nursery in England, for the purpose of protecting tender shrubs during the winter, and shading them in the summer. It is the only thing of the kind we have seen here. The stock of roses is considerable, and a very few years will give Mr K. a large quantity of ornamental shrubs and other plants, for which we anticipate an ample demand from the increase of horticultural taste in New England.

The great features of Mr W. Kenrick's establishment are the stock of *Morus multicaulis*, and the nursery of fruit trees. The former must amount to nearly one hundred thousand plants, and will if, as we think highly probable, they prove hardy enough to stand the winters here, become a source of wealth and independence to the proprietor. This gentleman has taken great pains to import from Europe the most approved varieties of apple, pear, peach, nectarine, and other fruits, with a view of trying their value when grown in this climate. We had not time to go through the young plants of each variety, but there appeared an ample stock of healthy trees, from which selections might be made for the garden or orchard. We cannot omit noticing the magnificent landscape from a rustic stand erected by Mr Kenrick on an elevated part of the grounds; from this the view embraces one of the most delightful panoramas we have ever witnessed, rich in di-

versity of hill and valley beyond expression, while the extent is indicated by the clear outline of the Wachuset mountain in the distance.

At Belmont Place, we observed many beautiful plants in flower; among others, *Crinum amabile*, the double scarlet pomegranate; *Pasiflora edulis*, the edible passion-flower, in fruit; this we have tasted in England, but prefer the gooseberry, which it somewhat resembles. The horticultural taste displayed in these grounds we hail with pleasure, and hope that it will find many imitators; nor is it necessary for this purpose to possess unbounded wealth. To render prominent the varied beauties of the surrounding landscape, to enjoy the diversified and beautiful forms of the trees in the adjoining land, to form the small allotment of garden into elegant parterres of flowers, is equally within the grasp of him who dwells in a humbler sphere; but for the introduction of this taste, for the example which creates this love for the charm, the beauty, of natural scenery, we are indebted to wealth, and for this we offer our acknowledgements. There are several establishments we have not yet visited, but shall take an early opportunity of doing.

J. E. T.

DISCOVERY OF THE GENUINE TEA PLANT IN UPPER ASSAM.

“It is with feelings of the highest possible satisfaction that we are enabled to announce that the tea shrub is, beyond all doubt, indigenous in Upper Assam, being found there through an extent of country of one month’s march within the Honorable Company’s territories, from Sadiya and Beesa, to the Chinese frontier province of Yunnan, where the shrub is cultivated for its leaf. We have no hesitation in declaring this discovery, which is due to the indefatigable researches of Captain Jenkins and Lieutenant Charlton, to be by far the most important and valuable that has ever been made, in matters connected with the agricultural or commercial resources of this empire. We are perfectly confident that the tea plant which has been brought to light will be found capable, under proper management, of being cultivated, with complete success, for commercial purposes, and that, consequently, the object of our labors may be before long fully realised. It is proper to observe, that we were not altogether unprepared for this highly interesting event. We were acquainted with the fact, that, so far back as 1826, the late ingenious

Mr David Scott sent down from Munipore specimens of the leaves of a shrub which he insisted upon was a real tea; and from reports to the Governor-General on the north-eastern frontier, and his assistant, that a similar assertion was strongly urged in regard to the existence of the tea in Upper Assam. Still, we felt ourselves bound to suspend our decision on the subject until we should be in possession of the fruit of the reputed shrub, the only test which ought to guide us. We knew that several species of camellia were natives of the mountains of Hindustan, and that two of these were indigenous in our north-eastern frontier provinces; and, taking into consideration the close affinity between the two genera, we were disposed to expect that the alleged tea would prove nothing else but some sort of camellia. We have at length obtained the fruit of the Sadiya plant from Lieutenant Charlton, and we are now enabled to state, with certainty, that not only is it a genuine tea, but that no doubt can be entertained of its being the identical tea of China, which is the exclusive source of all the varieties and shades of the tea of commerce. With the view of exhibiting the peculiarities in the structure of the fruit, on which depends entirely the difference between the tea and camellia, we have desired our officiating secretary to annex to this letter a sketch of the fruit of both, with explanatory remarks."

The chief obstacle to the culture of the tea, not only in the cooler regions of India, but also in various parts of America, and even the south of Europe—possibly, even in the south of Ireland—has always, as it appeared to us, been the difficulty of preparing it by the tedious mode of manipulation in use among the Chinese. It is unreasonable, however, to suppose that this excessive manipulation is necessary. Tea leaves, or young shoots of the tea shrub, may be dried like hay, or as the young shoots of the birch and other trees are in Sweden, then fermented to any degree that may be necessary; that is, if fermentation be necessary at all; and afterwards compressed into cakes almost as solid as chocolate, by a Bramah press. In this state it would lose none of its virtues for many years, and might be sent from one part of the world to another in little bulk. The taste would, doubtless, be different from that which tea has at present; but if it were found to be equally wholesome, the prejudice in favor of the present taste would, like all other prejudices, be got over in time. It appears from a statement in the pamphlet above quoted from, that the Singphos and Kamtees are in the habit of boiling the stalks and leaves, and then squeezing them into a ball, which they dry in the sun, and then retain for use. — *London's Gard. Mag.*

WORK IN THE FLOWER GARDEN FOR OCTOBER.

IF the directions in a former number have been followed the garden will still be gay with the remains of the summer annuals in addition to the autumnal Dahlia, China aster, Marvel of Peru, &c. — care must now be taken to remove all plants that have done flowering except where it is wished to preserve seed ; these should be tied up neatly, yet not closely or the seed will damp and mildew — all weeds should be carefully removed before the seed is ripe, the old adage says *one year's seeds give seven years' weeds*.

Place marks to all herbaceous perennials so that in stirring the ground the ensuing spring the young heads rising may not be destroyed — those of this species which are too tender to withstand the climate may be placed in boxes in the cellar and this month will be the proper time to take them up — many others will be more secure if covered with pine boughs, which may be prepared now. Pæonies are, we believe quite hardy, even *P. moutan* remained out all last winter only with the above protection.

In this month take up bulbs of *Tigridia* and other migratory plants of the southern regions which are destroyed by the first frost.

Most of the green-house plants must now be housed if not done previously, as a night's frost gives no warning, but be mindful to give them as much air as the fine weather will permit during the day and decrease gradually the quantity of water.

Save seed of your choice flowers and always gather in the middle of the day -- collect all leaves as they fall, into a heap for the purpose of manure ; they are a great treasure to the florist. J. E. T.

GARDENER'S WORK FOR OCTOBER.

Gardeners are too apt to suspend the use of the hoe and of other means of extirpating weeds too early in autumn. In consequence of negligence in this particular couch grass, pigweed, purslane and other vegetable intruders give much more trouble than they would if met with that timely and continual opposition, which is necessary to their subjugation. Every weed which escapes extirpation, becomes the parent of a numerous progeny of pestiferous plants which spring up and monopolize the soil at the expense of useful products. Let

therefore the provident tiller be aware that "an ounce of prevention is better than a pound of cure;" and that "the best way of weeding is to prevent weeds from seeding." *Cobbett's American Gardener* observes that many things which are usually sown in the Spring, would be better sown in the fall; especially when we consider how little time there is for doing all things necessary to be done in the spring. Parsnips, carrots, beets, onions, and many other plants, according to that writer may be safely sown in the fall. Mr Armstrong states that early crops of peas may be best had by sowing in the fall in sheltered situations, and covering during the winter, with a layer of leaves, and another with long stable manure, loosely applied to keep the leaves in their places. Peas sown in the fall according to Cobbett, will ripen fifteen days earlier than those which are put into the ground in spring. Towards the end of the month, if the stalks of asparagus turn yellow, cut them close to the earth; clear the beds and alleys from weeds, and carry them with the asparagus-stalks from the ground. It will then be well to cover the beds with old litter, well trodden down to be removed in the spring. You may now apply a layer of dung or of good compost, an inch thick over the beds. You may now plant out onions to raise seed the next season. The seeds of dill, shirret, rhubarb, sea-kale may now be sown; for if kept out of ground till spring many of them will not vegetate till a year after; but when sown in October or November, if the seeds are fresh and perfect they will come up in the April following. You may now begin to take up and secure potatoes, if they are fully ripe and the vines dead. Potatoes should be picked up immediately after the hoe, and exposed as little to the sunshine as possible. If they lie for a long time in the sun, they are apt to turn green, and become in a degree poisonous. Such spaces of ground as are now vacant should be dunged, and then dug or trenched, and thus have the advantage of a winter fallow, and that exposure to frost, which will reduce it to fine tilth, and destroy worms, larvæ of insects, &c.

FRUIT GARDEN AND ORCHARD. The old beds of strawberries should, towards the last of this month, be cleaned from weeds, and the vines or runners taken off close to the plants. Then, if there be room, loosen the earth to a moderate depth between the plants, taking care not to disturb the roots. And if the plants are in beds with alleys between, line out the alleys and let them be dug a moderate depth, breaking the earth very fine and spreading a sufficiency

of it over the beds, between and round the beds, taking care not to bury their tops. A slight top dressing of compost may now be applied. Early apples and pears may now be gathered; but those intended for winter's use should remain on the trees as long as safety from frost will permit. They may be as well preserved in dry sand as by any other mode. If you are not apprehensive of the depredations of mice, rats and squirrels, &c. you may sow the stones of plums, peaches, nectarines, apricots, &c. as soon as the fruit is ripe, or you may, if you think it more prudent, preserve them in sand till March or April. Apples, if fully ripe, may now be picked, though as a general rule it is best to let them remain on the tree as long as they are safe from frost. Noah Webster, Esq. observes that "The best mode of preserving apples for spring use I have found to be putting them in sand as soon as picked. For this purpose I dry sand in the heat of summer, and late in October put down the apples in layers, with a covering of sand upon each layer."

VINEYARD. M'Mahon advises not to prune grape vines in autumn. "In the southern States this may be done, with great propriety, as soon in this or the ensuing month as the foliage shall have been shed, but by no means before, as while the leaves remain on, the vines will not have done growing, and consequently the wood will not be sufficiently ripe and hard. Rooted vines may now be transplanted, but they should be protected by laying litter round their roots, or some other suitable defence against the severity of the frosts. A writer in the "*New American Gardener*" says, "The best mode of raising the plants is by cuttings taken from the vines at the fall pruning, and preserved in earth till Spring. These may be made either of one eye or bud, or of four or five, attached to a small portion of the two years' old wood, forming a cutting in the shape of a mallet."

NURSERY. The best time for sowing acorns of every sort as well as chesnuts, walnuts, hickory nuts, &c. is immediately after they fall from the trees. If they are long kept on hand, in a dry state, they lose their power of vegetating. If, however, there is danger from mice, rats and squirrels, it will be better to preserve them till the early Spring months, in sand or earth, or in moss, and if they should sprout, they will advance in vegetation but very little before the Spring opens. if they are kept in a cool place.

THE
HORTICULTURAL REGISTER

AND

GARDENER'S MAGAZINE.

NOVEMBER 1, 1835.

ON THE CHOICE AND CULTIVATION OF THE MELON.

THIS delicious and refreshing fruit well deserves the care and attention of the gardener, and as, in favorable seasons it will arrive at a maturity here in the open air, the application of a small portion of the horticultural skill and labor which are so freely lavished on it in Europe, would undoubtedly enable him to excel in its production, as well as to render it a certain and unfailing crop.

For this purpose an account of the natural habits and wants of the melon tribe is requisite, that the actual advantages of the climate may be drawn forth and improved, or its deficiencies be supplied in as great a degree as the ingenuity of man is able.

Cucumis melo, the melon, is supposed to be a native of Asia but has been so long known in most southern countries that its origin is somewhat involved in uncertainty, it was cultivated in England as early as 1570, and was it is supposed introduced from the West Indies, being known by the general appellation of *musk melon* until the middle of the last century; from that time the improvements of horticulture have caused new distinctions of name and variety, so that at the present time nearly 150 different sorts have been tried and described.

It is a tender annual plant, trailing on the ground, of the Monœcious tribe of Linnæus, that is, with two distinct flowers, one of which only bears fruit, the other is barren, it is necessary however that the pollen or powder of this latter should come into contact with the pistil of the fertile flower in order to produce a crop; this is usually effected by bees and other insects, but when grown altogether under glass as in Europe, the operation is often per-

formed by hand. It requires considerable heat to come to perfection, 65 degrees is about the lowest in which it will grow at all, but 80 or 90 degrees is a necessary temperature for the fruit to ripen in perfection. The melon is a very succulent plant and prefers a damp warm situation when in full growth. Such is its partiality for water, that, it is recorded in one of the late publications either in England or France, a plant sent little fibrils of the roots through a brick wall into an adjoining water cistern lined with Roman cement, the consequence was that it surpassed all its neighbors in luxuriance and productiveness; when the season is advanced however and fruit is ripening water is not so necessary; the melons grown on the floating garden in South America and other parts of the world are said to excel.

Good seed is of the first importance, and most gardeners are very nice on this point; some will only take from the first ripe fruit, and even then only from the ripest side; such as float when thrown into water are generally rejected as imperfect, those which sink are chosen as most fertile. The seed ought to be two or three years old, even four or five is not too old; after twenty years it has been known to germinate and produce good fruit; many gardeners keep their melon seeds in the pocket, so as to receive the constant heat of the body for several months previous to sowing, and Nicol observes that without this precaution, or something similar the plants will not be fruitful, but will run too much to vine, and shew chiefly barren blossoms.—The truth on this subject appears to be that the cotyledons of the seed require their juices to be more ripened and concentrated than can well be done in the moist interior of the fruit where the climate is such as to render artificial heat necessary, and where the melon is eaten as soon as the flavor is considered good, without reference to the proper ripeness of the seed, which probably only takes place after the fruit is overripe and the flavor gone. It is better to cultivate the various sorts of melons and gourds at some considerable distance from each other, as the insects are apt to mix the pollen, and the true varieties are lost by becoming hybridised.

Mr Knight thinks, with justice, that the seed of all the more delicate and fine flavored melons degenerates in a cold climate, for it is certain that every large and excellent variety must have resulted from high and warm culture, and abundance of rich food continued for many seasons; these combined advantages, particularly the constant heat and light of the sun, cannot be obtained in England so as to produce sufficient breadth of luxuriant foliage properly to nourish a fruit of large size and rich saccharine juice in its highest perfection. In

this country however this deficiency is supplied, and if proper care and attention is paid to the cultivation, so as to have plants on the melon ground early, and then well protected and kept warm until the latter end of June there can be no difficulty either with respect to the fruit or seed.

According to the best authorities the melon prefers a rich, unexhausted, slightly sandy loam, with plenty of manure, not too rank or fresh. Sheep manure has been from time immemorial used in Persia in cultivating this fruit.

The best method for this climate we apprehend would be to sow seed in pots say five in a pot and bring them forward early in the green house; in the beginning of June make a small pot bed of fresh manure, lay over this 2 or 3 inches of decayed leaves, then cover six inches deep with proper compost, put on a small glazed frame, and when the rank heat has a little subsided, turn out the pot without breaking the ball of earth into the centre of the bed, water freely with *lukewarm* water, and shut up the frame; if cold nights come on mats must be laid on the glass, and linings of fresh warm dung applied all round the bed; on hot days give plenty of air in the mornings, — this is very essential, but close the frame early in the evening. In July or when the hot weather really sets in, the frames may be taken off and the plants left to run over the ground, the original manure of the hot bed will then have become a rich soil for the roots, and as before mentioned they should be plentifully supplied with water while in full growth — rain water is much to be preferred.

If no fruit shews, after the vines are four or five joints in length, pinch off the tops, and the laterals will then probably become fruitful; when a fruit is well set and swelling also pinch off at two joints above it; do not move the leaves about much, plants of which leaves are injured do not thrive so well. When the melon is about the size of an apple lay a piece of slate underneath to protect it from the damp of the earth; this is particularly requisite with the Persian and other thin and tender skinned melons — it also assists in ripening.

The melon is generally considered ripe when the skin cracks in a circle round the base of the foot stalk where it joins the fruit; the odor is also a good criterion on this point.

One of the most difficult parts of the cultivation is to protect the young plant from insects and disease, against the squash bug. I know of no better remedy than the common one of lime and soot strewed over them; sulphur is a remedy for the red spider, but if the

plants are well grown and vigorous the mildew and insects will rarely touch them.

The varieties most generally esteemed are

1st. The Cantaloups, so called from a country seat of the Pope near Rome where the variety is supposed to have been originally produced.

2d. The Romanas originating in Italy.

3d. The Persian melon.

The general character of the Cantaloup is of a roundish form, with netted, or large rough, warty and thick skin, the leaves not very large. Of the netted sort, the best are

The Beechwood Melon, an excellent, early, greenish yellow kind, flesh greenish white, middle size.

Melon des Carmes, a well flavored large fruit with a thick orange rind, and juicy sugary pulp.

Melon of Langeais, a middle sized, ribbed fruit, with orange colored, sugary, sweet scented flesh.

Sugary Melon of Tours, fruit large, with firm, sugary, orange colored flesh.

Of the deep furrowed, rough, warty, thick rind Cantaloups, the following are the best.

Montagu Cantaloup, a variety from the Italian green fleshed, and the smooth scarlet fleshed Cantaloup, middle size, early, thick yellow rind, pale red flesh, which is soft and juicy, and completely melting in the mouth.

White seeded Cantaloup, a very juicy highly flavored fruit, small, thin, rather netted yellow rind.

Orange Cantaloup, a small, round, pale, yellow fruit, rather netted. The flesh when first fit for cutting is orange, but when riper is more red; in flavor it is excelled by none of the melon tribe, being juicy, sugary, and rich. It is a free grower, an early setter and a great bearer.

Scarlet fleshed Cantaloup, a middle sized early fruit, with a thick yellow rind and red sweet flesh particularly high flavored.

Italian green fleshed, a middle sized early fruit, thick yellow rind, green flesh, rich and sweet in flavor.

Ionian green fleshed, a large thin skin, lemon colored, and lemon scented; excellent flavor but a shy bearer.

Masulipatam green fleshed, a small, excellent, early sort, skin and flesh green.

Golden Rock, a middle size fruit, thick yellow rind, pale red flesh, excellent flavor.

Silver Rock, nearly the same, but later.

Petit Prescott, fruit depressed, crowned at top, ribs warted, flesh delicious.

Carthagena, a large, high flavored fruit, with a thick orange colored rind, pale red flesh.

Early Polignac, an early, rich, medium sized fruit, with a thick yellow rind, pale flesh, commonly cultivated.

ROMANAS.

Lee's Romana, a medium sized, longish, shallow furrowed fruit, rind hard, pale yellow, flesh yellow, not very juicy but very high flavored if eaten *sharp* ripe.

Large netted Romana, the largest of the Romanas, regularly netted all over, furrows shallow, rind hard, pale yellow, flesh full yellow, flavor like the last.

Fair's Romana, a small oval fruit, rind greenish yellow, flesh pale yellow, not very juicy, but fine and agreeable flavor.

The third variety of Persian melons, is called by Decandolle, var. *Maltensis*, and is subdivided into *Maltese and Persian*.

The white fleshed Malta Melon, is an early middle sized oval fruit, with sugary juicy flesh, rather watery.

Yellow Malta, flesh orange colored, sweet scented.

Candia melon or Maltese Winter Melon. This is extensively cultivated on the Mediterranean coast, particularly in the orange gardens at Hieres near Toulon, from whence the fruit is sent to Paris; of late years it has been regularly imported into England. The shape is oval, about a foot long and 6 to 8 inches broad, color dark green, rind thin, flesh white, sugary and juicy, rather firm, not rich but pleasant and grateful.

PERSIAN MELONS.

Daree, a good sized, late fruit, skin green, thin, flesh white, high flavored.

Dampsha Melon, an excellent large fruit, nearly cylindrical, netted, rind thin, and yellow when ripe, flesh green, quite melting, delicious flavor; this fruit will keep for some time if hung up by the stalk. Rather late.

Large Germek, an excellent, early, green skinned sort, of considerable size, flesh green.

Green Hoosaince, a middle sized, late, good quality, yellow rind, thin green, flesh white.

Striped Hoosaince, a very good late sort, with greenish yellow rind and white flesh. This fruit was we think, shewn at the late exhibition of the Mass. Horticultural Society, by M. P. Wilder, Esq., of Dorchester, who raised it from seed sent over by the London Hort. Society.

Keiseng, this is said to be one of the best Persian Melons; the skin is thin, pale yellow and red, flesh white.

Sweet melon of Ispahan, this is reported as the best of melons, size large, skin yellow, flesh green, crisp, sugary, and very rich in flavor.

Melon of Nukshevan, an excellent late kind, skin yellow, pulp white.

Salonica, fruit round, rind gold colored, flesh white; it is very sweet, and improves in richness and flavor until the pulp becomes soft and of the consistence of a water melon.

The water melon is a variety of *Cucumis citrullus* — it is, as well known here, large green, red in the centre, juicy and refreshing, but not high flavored. In Egypt large quantities of them are consumed both as food, and as medicine in high fevers; for this latter purpose they wait until the fruit is overripe and nearly putrid, then mix the juice with rose water and sugar. This is generally considered to be the melon of the ancient Jews which is mentioned in the Bible.

In the cultivation of it, of course the same treatment is necessary as with the other species.

The melon is a water loving plant, and therefore I think a fair experiment might be made of planting it on some of the uncultivated swamps, throwing in first a few spadefuls of manure where planted, and laying the fruit, as soon as formed, on the small rocks which generally rise above the surface of the swamp.

J. E. T.

Our valued correspondent, Mr Jos. Breck, has sent two Citron Melons, the cultivation of which is the same as the common water melon, with the following recipe, which he says makes citron equal to any imported from the Mediterranean.

FOR PRESERVING AMERICAN CITRON.

Pare the dark green from the outside and scrape the soft from the inside of the melon, cut it into different forms, boil it in alum water till clear; then throw it into spring water, where it may remain two

or three hours, changing the water frequently. To one pound of fruit put two pounds of sugar, make a syrup of half the sugar and boil in it the citron, until done, when it will be transparent. At the expiration of two or three days take the jelly from it, add the remaining half of the sugar, boil and pour over the citron, which will then be ready for use — season with ginger — sliced lemon is preferable.

[For the Horticultural Register.]

HORTICULTURAL PURSUITS.

THAT a general and devoted attention to the cultivation of flowers and ornamental trees, can be expected from a population deeply and extensively engaged in commercial and manufacturing pursuits, is a matter of doubt — but that such an attention, if it could be excited and sustained, would be a great and powerful means of improving the moral condition of a people, admits of no question in the liberal and intelligent mind; it is a matter of historical fact, that those nations which have been most distinguished for their love of husbandry whether of the garden or of the field, have been the most prosperous in their undertakings, and the most enviable in their moral condition, and why? Because the human mind is modified and moulded according to the good or bad influence, that the avocations to which its attention is given, exert upon it. If the sight of a beautiful landscape, upon which the fading vision of sickness and disease rests, can give the thoughts a purer and higher direction, and touch the heart with the hues of its own quiet beauty — why should not the feelings of him, whose hand corrects nature's imperfections, and gives to the scene its finished and perfected appearance, be led along in the midst of his labors, in the same moral and devotional current?

Surely, in planting the tree and setting the hedge, the individual of good and subjected feelings looks beyond the mere *profit* of his labors and rejects the insinuation, that his every act is an act of cold calculating indemnity for toil and attention. The recompense of a good mind is found in the moral tendency of its employments and in the belief that its labors are for the benefit, instruction and welfare of those who shall have come upon the stage of existence and have entered upon the routine of active life, when their predecessors sleep in the green and populous field of the dead, and where (if these sentiments are correct) can a surer and a better recompense be had than in the cultivation of the earth? Is there any thing in the wide world

which can more thoroughly soften the harsher traits in our nature and give birth to a more enduring satisfaction, than the knowledge, that while we are effecting much for the comfort and pleasure of others, we are enriching our own minds with the sound, moral feelings such pursuits naturally inculcate ?

In speaking of a rural life, Washington observes, that " he could nowhere find so great satisfaction, as in those innocent and useful pursuits ;" and this sentiment, when we consider its justness and the character of the man who uttered it, deserves to be treasured up. But it is not the moral features of this avocation alone which recommend it to our attention, the outward effects of a general regard for ornamental husbandry appeal to national pride, and it is this, which has established for Great Britain a reputation for beauty of home scenery, which scarcely any other nation can lay claim to; her rich fields spreading almost into one continued garden, and shaded with oaks whose plantation is almost beyond the remembrance of man; her homesteads, beautified with every plant and with every flower which can endure her climate, all are matters of national pride, and would lead even the foreigner with all his antipathies and prejudices to exclaim, as he looks upon the palaces of peace and of plenty,

"How beautiful they stand,
Amid their tall ancestral trees
O'er all the pleasant land."

If we would be known among the great of the earth as a nation not only secure in its riches and its natural resources, but in its moral strength, we must cherish a love for the first and the best employment given to man by his maker. Let us all in our leisure moments, do something to embellish the patrimony which has fallen to our lot, something to be pointed out as of our doing when we ourselves shall be gathered to our fathers. The tree of our planting will be growing when we are sleeping, and its broad shade in years to come will perhaps shelter our memories from the rude assaults of time. There is no good reason why the rough soil of New England should not be chronicled as the rich home of rural arts upon the pages of the traveller, as well as the countries of the old world. A devoted attention to ornamental husbandry for a few days in each year, would make even the humble cottage a home of loveliness and beauty; it would build up for us a reputation, which our posterity will be proud of, and generate a moral influence which our posterity will feel, and in their turn transmit to their descendants.

F. R. G.

Concord, Ms., Sept. 26, 1835.

ON HORTICULTURAL ARCHITECTURE.

WE resume this subject for the purpose of giving a few principles to serve as guides for laying out either large or small plots of ground, so as to make them embellishments to the dwelling house, and places of delicious enjoyment for the leisure hour.

The first objects of observation are the size, the surface, the situation of a spot, then the trees which are already in growth, and the aspect of the house; we hold that in this climate, a north and south aspect is preferable, particularly if windows can be had facing the west, so as to give an uninterrupted view of the glories of the setting sun — with us this would be indispensable.

In a country where extremes of temperature exist, north and south apartments are peculiarly grateful in moderating the rigor of either extreme, and this position protects in some measure against that Sirocco of the north, the East wind of Spring.

Suppose the area or garden space to be small, one great object would be to shut out by shrubbery the boundaries, so that the small extent might not appear, to fill every angle and corner with the Lilac or other large and spreading plant, and to take every advantage of the adjoining land. Thus imagine the neighboring piece to be grass; by means of a very open or of a sunk fence and a grass plat the grass on both lands would appear to combine and present an extensive expanse of green, or if wood adjoins, then by judicious transplantation an uninterrupted line of copse would be formed, on which the eye would rest with pleasure. The invisible fences commonly used in England, might here be of great service, they are made of thick iron wire, about four feet high, with thin iron posts at distances of eight or ten feet, painted black, so that they form no impediment to such combinations of prospect with contiguous properties. The same may be done where a rivulet or a piece of water exists near, observing always that such innocent appropriations of our neighbor's property is much better enjoyed when only caught at glimpses and between intervals of shrubbery; it is impossible, on this point, to throw out more than the idea, the execution of it must depend altogether on taste, situation and capacities; it is in fact nothing more than making the same use of a home or near view, that many do of an extensive prospect, that is, build an elevation to enjoy it in greater perfection and extent.

Having made the most of external advantages, let us consider the

outlay of the garden spot itself ; here it is absolutely necessary for every one who has his piece of ground, to plant the peach, the vine, the apple and pear ; the combination of the useful with the ornamental is unavoidable, let us therefore endeavor to make the useful as ornamental as possible ; and in truth, besides the blossom, we know no tree or shrub more beautiful than a peach tree thickly studded with its rich dark crimsoned fruit, or the spreading apple bending under the weight of its smiling rosy cheeked clusters.

But instead of planting these trees in formal close orchard lines, we should dot them about apparently irregularly, but in reality with some plan, at sufficient distances to permit, when full grown, intervals of parterres of flowers, and under each tree we should spread a circular carpet of verdant grass, kept well mown, on which the ripe and bursting peach might fall uninjured, and the disfiguring tread of the gatherer be unseen. The connexion of these circular grass plots by means of trellises of the vine, or variously formed beds of herbaceous and annual flowers, with here and there a screen of three or four thick shrubs, to conceal and protect from early blasts, a bijou or jewel of a recess set apart for small masses of choice flowers, which may suddenly and unexpectedly burst on the wanderer through the alleys — these and a variety of other schemes will afford exercise to the man of taste, and create interest in the visitor.

To these remarks for small plots of ground, we would add a few common place rules, such as, that straight lines particularly for short distances, unless terminating in bold curves, are not pleasing to the eye ; narrow walks, unless winding at short intervals through woods, are by no means desirable. The division of a small piece of plain surface into fancy figures and forms, carries at first an appearance of symmetry and prettiness, but this symmetry is soon destroyed by tall growing herbaceous shrubs and plants, and the original idea and intention is lost, besides the taste is not correct nor is the charm of variety kept up, when the eye can embrace the whole extent and plan of a garden at one glimpse. In all gardens a rock work is a device which, if well erected has a good effect ; such a receptacle for plants in this climate, where the purity and clearness of the atmosphere vies with that prevalent in Alpine regions, it appears to us would succeed admirably. The class of plant proper for the crevices in such an erection, are those whose small size yet elegance of foliage or floral form, have given them great interest with horticulturists, and whose habits of growth, particularly adapt them for covering and

ornamenting the barren projections of rocks with their profuse blossoms. To facilitate these plans, I have in this number given a list with a description of such plants as are suitable for this purpose, with hints on the form of such artificial rocks.

In grounds where natural ledges exist, the work is already done to our hands, and all that is required is the exercise of taste in disposing the groups and colors. An arbor or trellis covered with the vine, or with a variety of the clematis and climbing roses or other quick growing plants, is a good termination for a walk, which should branch off close round the trellis, to appear as if it led to a continuation elsewhere, at the back a few shrubs might conceal the boundary or fence.

Where larger spaces of ground are to be operated on ornamentally, the first point is to open before the principal front of the house, an extensive plot of well kept grass interrupted with clumps of forest trees at considerable distances from each other, so managed as to admit between the intervals, the most interesting points of the surrounding prospect, such as the spire of a meetinghouse, a distant mountain, or a piece of water, the boundaries or which might be purposely hidden by these clumps so that if the extent of water be small the terminations would not appear.

The approach to the house should be by a broad semi-circular drive intersecting the lawns, and leading by branches to the stables and out buildings, as well as to the flower and kitchen gardens; this last, if near the house, must be completely concealed, either by walls covered with fruit trees, or by shrubberies, and may be preferably laid out in a series of parallelograms.

The vicinity of Boston abounds so much in every variety of beautiful landscape, that there is scarcely any place where art is less required in laying out pleasure grounds; walks now winding through the small adjacent copse filled with wild flowers assembled from every location where they are found, *gradually* ascending an elevated spot where the beauty of the prospect bursts on the astonished eye, then leading into the cultivated flower garden, with its basins or ponds of water for aquatics, its rock work, the trellis covered with climbing roses leading to a rosarium, the parterres for collections of herbaceous perennials, the damp and protected spots for the rhododendron, azalea and other peat earth plants, the rustic moss house, and the collections of flowers in masses: after leaving this paradise of sweets, passing some distance through a thick plantation of the most orna-

mental forest trees of America, including the varieties of pine and fir, then suddenly emerging on the beautiful expanse of grass lawn in front; all this, owing to the natural advantages of the country surrounding Boston, may be accomplished at a comparatively trifling expense and loss of time.

In forming ascents to rising grounds, where prospects are to be enjoyed, there is some art required to make the attainment of the elevation easy; this is done by cutting low steps at considerable intervals, say ten or twenty feet, according to the nature of the ground; these should not be more than three or four inches high, and as wide as may be possible; a facing to these steps of round sticks with the bark remaining on, about two inches in diameter, driven down, or fastened by battens, is very appropriate. Such paths to eminences are preferable when they wind round and gradually reach the summit.

There is also some management necessary in working up such landscapes with an artist's eye, by opening vistas through plantations, concealing barns and out buildings or kitchen gardens by judicious management of clumps of trees, or permitting small glimpses of the flower garden by gaps in the shrubberies — an ornamental roof of a greenhouse partly concealed by foliage is an elegant object. Of course little else can be done than to give general ideas on these subjects, which must then be worked out according to the capabilities the place offers; the truth is, however, that it costs no more to lay out a place so as to combine and render conspicuous, all its natural advantages, than it does to arrange it so that they are all concealed, or at least thrown into the shade.

When it is required to intersect the lawn in front, this had better be done by a sunken avenue with grass banks, so that the extent of grass presented to the eye offers an unbroken surface.

Single trees of elegant forms and growth, on a plot of grass, are extremely ornamental — Such are the Tulip tree, *Liriodendron tulipifera*, Magnolia, *auriculata* and others, the Tupelo tree, *Nyssa*, the scarlet Oak, the Elm, particularly when of large growth, the weeping Ash, the purple Beech, the Moosewood, *acer striatum*, and the weeping Willow on the border of a pond has a good effect. J. E. T.

[To the Editors of the Horticultural Register.]

COLUMBIA, S. C. OCT. 1, 1835

GENTLEMEN — I am much pleased with your publication, the “Horticultural Register.” It is conducted with great skill and intelligence, and cannot fail being productive of much advantage, pleasure and knowledge to its subscribers. I was particularly pleased with the article in the 5th number, page 164, “On the common and botanical names of plants and flowers.” This article, as all the others above the signature J. E. T., is so judicious and well tempered that it must have its due effect. Anything that will induce a gradual abandonment of the vulgar names of plants and the use of botanical ones, were it only partially so, must be highly useful. I beg your leave to throw in my mite in so good a cause, by relating one of many instances when the use of the common names of plants might have been attended with fatal consequences.—Some years since a young physician on a visit to an uncle of his in this place, was speaking to me on the advantages a knowledge of botany was to a physician, and he stated as one instance of it, his having lately made use of the root of the “*Podophyllum peltatum*” as a substitute, I believe, for jalap, that Dr. Barton had told him it possessed the same medical properties as that well known drug; and that it was the plant bearing the fruit called “May apple.” Now the *Podophyllum peltatum* grows here, though it is somewhat scarce; but we have another plant which is much more abundant, and a very troublesome weed in our gardens and fields, the “*Passiflora incarnata*,” which bears a fruit also called “May apple.” Suspecting that the young Dr. was not yet much of a botanist, and depended more on the vulgar name than on the botanical one, I asked him where he had got the *Podophyllum*. He said there was a plenty of it in his uncle’s garden, which I knew to be the *Passiflora*. He stated, it is true, that the root had had the desired effect, but could scarcely be made to believe me when I assured him that he had used quite a different plant, which for aught he knew, might have killed his patient. Comments on this are unnecessary.

There is, however a difficulty of a different kind to the more general use of botanical names, one which has caused many a learner to abandon the study of botany in disgust, and that is the great propensity which some botanists, too many of them, have of unnecessarily substituting new names to plants well known by their old ones. I shall take here the liberty of mentioning one instance of this.

It was with great pleasure that I saw in the 3d number of the Register so honorable a mention of my old favorite, "the *Cantua Coronopifolia*" of Wild. the "*Ipomopsis elegans*" of Mich. This is a plant which I have cultivated near 30 years, and have sent seeds of it many years ago to the North, to England, carried some to the Jardin des Plantes at Paris, sent some to Geneva, &c. &c., so that if it has but of late years come to notice again, it may have been by my agency.—If I was pleased with the notice of the *Cantua* in the 3d number, I was somewhat otherwise when I saw in subsequent numbers that its name has been changed to "*Gilia*," to which genus it is said it was properly joined. It may have been perfectly proper to do so, but I think that it would also be proper to give satisfactory reasons for the change. Is the genus *Gilia* older than the genus *Cantua* or *Ipomopsis*? or is the botanist who made the change so very superior in his merits as a cultivator of the science of botany than Willdenow, Michaux and many other respectable and meritorious botanists who have hitherto been satisfied with the names *Cantua* or *Ipomopsis*? If you can sir, or any of your correspondents give me sufficiently good reasons for the change, I shall willingly submit, but during 50 years or upwards that I have meddled with the knowledge of plants, I have had to learn and unlearn so often, that it is not now so easy or pleasing a matter to me.

N. H.

NOTE BY THE EDITORS.—We have long desired to see an article impressing on the public mind the necessity of a botanical education, being more strictly enforced on the medical profession, nor do we think it can be more happily illustrated than by facts such as narrated in the above communication of our valuable correspondent.

Botany is not, as formerly, the mere ability of classing and naming a plant, it is now a knowledge of the structure and properties of vegetables, tending chiefly to one point, viz. their uses and value for the benefit of mankind, although many stop satisfied alone with their beauty. If a perfect knowledge of the structure of the human frame be requisite, surely an equal knowledge of what is to act on this frame is not less important in a medical education. One very beneficial result would be the appropriation to the profession and the consequent handling by well educated and responsible persons of most of the medicines now dispensed by those technically called quacks, who must have gained the original knowledge of the beneficial qualities of necessary quantities of their vegetable nostrums, at the expense, perhaps I might add with the sacrifice, of those credulous persons on

whom they first operated. The French, have of late years done very great things in this way by analysing and extracting the various properties of plants in known crystalline combinations; to their persevering industry and intelligence the world is much indebted on this subject.

With regard to the second point touched on by our correspondent, we would observe, that we frequently omit scientific details, for fear of rendering this periodical too dry or uninteresting to the general reader, yet we shall be always most happy, *when called on*, to offer such explanations on Botanical subjects as our abilities permit.

Gilia was a name given by Ruiz and Pavon in their *Genera plantarum fl. Peru et Chile*, page 25, tab. 4, published last Century, in honor of Signor Gil, author of *Phytological Observations on Exotic Plants cultivated near Rome*. After careful examination of the *Ipomopsis* of Michaux and the *Cantua* of Willdenow, Jussieu thought they belonged to the same species and proposed to unite them under the name of *Gilia*; Prof. Hooker of Glasgow in acceding to this, observes that perhaps in true *Gilia* the stamens will be found to be inserted in axils of the segments of the Corolla, which is the case in Willdenow's *Cantua*, and also agrees with the dried specimen of *Cantua aggregata* of Pursh, now in possession of A. B. Lambert, Esq., which was gathered by Captain Lewis at Hungry Creek, in 1806.

Gilia is in the natural order Polemoniaceæ in the Monograph of this family by D. Don, *Edin. Phil. Journal*, 1822, and the following is the character—Calyx, a tube with 5 divisions, membranous—Corolla, funnel shaped, 5 divisions, divisions entire, often obovate—Stamens, inserted in the throat of the funnel, generally rising above it—Anthers oblong, erect—The division of the Capsule, several seeded—Seeds angular, Embryo, shorter than the cotyledon—Leaves generally alternate, pinnatifid—flowers with stalks, generally fascicled—Stigma, three parted.

With the alteration of names Botany is perhaps much less troubled than many other sciences. Lamarck has changed the nomenclature of shells. Mineralogy, Geology and Chemistry, are notorious for their unsettled names and systems, but in Botany there are at present so many extraordinarily gifted laborers that each one is timid in changing an established name without sufficient grounds, yet there is so much still to learn, that some alterations have yet to be expected; particularly in plants of tropical and lately traversed regions, of which the seed vessels and seed, are comparatively difficult of access for examination.

J. E. T.

SELECTION OF FLOWERS FOR THE PLEASURE GARDEN.

[Continued from our last number.]

Campanula glomerata, micrantha, pulchella, lauri, ruthenica, pyramidalis, blue and white, punctata-erinus. Most of these are perennial flowers and consequently do not blossom the first year—*erinus* however is annual and a most delightful plant, of humble yet elegant growth, with simple blue flowers—*punctata* is a large flower, not a very pure white, but the inside is dotted with beautiful crimson spots—*pyramidalis* when well grown in pots, is the most showy plant we know, we have seen them five feet high and three and a half feet wide, spread out on a frame, and so covered with flowers that scarcely a leaf or portion of the stem was visible; to grow them in this perfection requires some skill, but their beauty and durability amply repay the trouble; they require rich soil, much moisture, and some shade—*glomerata*, is very handsome with its dark blue dense heads of flowers; in fact most of this tribe are worth cultivation—*hederacea*, a native of wet places in Europe is a great favorite with us, this is now called *wahlenbergia*, the tribe *campanulaceæ* having been newly modelled and properly divided.

Stevia, serrata, rosea, and purpurea. These neat little flowers will always be agreeable from their pleasant vanilla-like fragrance.

Lobelia, erinoides, and gracilis. The former perennial, the latter annual, a pretty dark blue flower of humble growth, a native of New South Wales, very suitable for the front of the flower bed or for ornamenting rock work until the perennials have spread.

Silene, of eight varieties, we can only recommend *vespertina*, and this we believe is already well known here.

Mimulus, guttatus, simshii, luteus and others. These are exceedingly interesting to cultivate, they vary so much, or sport as the florists term it, they require some care and attention—the seed must be very lightly covered. We can refer in confirmation of their beauty to a box exhibited at the Mass. Hort. Soc. rooms, 28th Sept. containing 12 varieties raised by Mr Jos. Breck, of Lancaster.

Potentilla, formosa and atropurpurea—natives of Nipaul; these flower nearly the whole summer and are very ornamental, the first is a light bright rose color, the latter a dark red—a hybrid called *Russelliana*, of a fine scarlet, is also very showy.

Galinsoga trilobata, a small yellow flower of the composite, of no pretensions to beauty.

Verbena aubletia and venosa, very pretty and desirable, remaining in blossom until the frost; these are neat growing plants, and never grow straggling and unsightly like many others, from whose beauty this fault is a great drawback.

Calandrinia, grandiflora and others. This is a beautiful and shewy tribe, flowers large, open, of a rosy purple; it has however one fault, it only opens fairly in sunshine, and closes soon; there is very little difference between this and

Talinum, of which we only cultivated *Ciliatum*, a native of the Southern States, a small flower of the brightest amethystine hue, but only disclosing its beauties for a few hours during sunshine—it is of the same family as the common Purslane which is such a troublesome weed in many gardens.

Madia splendens, a handsome, yellow, annual flower with dark spots in the centre, and agreeable fragrance; this is a late introduction into the garden, where it certainly merits room; it is one of the Compositæ tribe, syngenesia of Linnæus; it does not seed freely, only the flowers of the ray appearing fruitful; it stands the early frosts, and the only objection to it is that it fades in the sun, and almost immediately after gathering; therefore is not suitable for bouquets.

Anthericum annuum, no ornament to the garden, but the stamens are curious.

Clarkia pulchella and elegans. The first has been known here some time and is a favorite with many. The other is a later introduction, and when grown in pots protected from the rough winds, it is a very shewy plant, but it is almost too brittle and tender for complete exposure.

Malope trifida and grandiflora. The first is a pretty flower, but is completely eclipsed by the size, color, and beautiful satiny polish of the blossom of *grandiflora*; there is no trouble in the cultivation; it begins to flower early in the summer, and lasts until destroyed by the frost, of which it will stand a considerable degree; it is one of the mallow tribe.

Argemone Barclayana and grandiflora. Plants of the poppy tribe, although to the mere casual observer offering not much resemblance; we admire both very much; *Barclayana* is yellow, *grandiflora*, white, and rather larger; one great beauty in this flower is the bright amethystine color of the top of the seed vessel, (pistillum) which it retains for some hours after its opening; when well grown, we have no hesitation in admitting these amongst the ornaments of the garden,

although accustomed to see it covering every rubbish place near the towns in Cuba.

Nicotiana nana and repanda. There are two varieties of the Tobacco plant which we do not object to as garden decorations if their odor be not too closely inquired into. *Nana* (dwarf) has a large spreading, fine white flower opening in the dusk of the evening, when the departing light sheds a lustre on its color; *repanda* is the species cultivated in Cuba for the finest quality of Cigars; it is of much more lofty and elegant growth than *nana*, the flower is also white, but the back is tinged with a delicate purple, the leaf is undulated or wavy on the edges — we admire both very much.

Canna indica, red and yellow; this is pretty well known here, at least the red variety; we think the yellow when luxuriantly grown is handsome, it has red stripes on the yellow ground. The foliage alone of this plant makes it desirable in the parterre.

Anagallis indica, a bright blue flower covering the ground every morning with its fresh beauties; it is a lover of sunshine, and is about half the size of the *anagallis monelli*, well known here as an inmate of the greenhouse.

Iberis odorata and umbellata. *Odorata* is white, the foliage delicate and pretty; *umbellata*, the dark purple variety, is very shewy and bright, particularly when the rays of the setting sun are on it. Independent of its own beauty we always cultivate this flower for the sake of seeing the most beautiful color the vegetable kingdom offers, which is produced by placing the lighted end of a cigar under the petals, their color instantaneously changes to a brilliant green; this alteration is produced with many other flowers, but in none have we witnessed a color at all approaching to this.

Salvia angustifolia. In our account of *Salvia* in our last number we inadvertently omitted this beautiful variety, which is a native of dry mountainous situations in the cooler districts of Mexico; it requires a light soil and protection during the winter; although called only an annual, its existence may like many others be perpetuated by raising plants from cuttings which strike readily. The whole flower is a beautiful deep azure blue, the spikes tolerably dense, the lower lip broad and spreading, a plant of elegant growth; we regret much that owing to our not having any means of protection, a dozen of these charming plants must be destroyed.

Thunbergia alata. This is a beautiful climbing plant of a nankin color with a dark eye; we remember having seen this in the

stoves in England soon after its introduction and little dreamt of seeing it flourish in the open air; its shoots will not readily curl round a thick pole, but it will readily cover one about half an inch diameter, it prefers a sunny situation. In our last number we mentioned a new seedling variety of a white color. *T. grandiflora* has a larger flower of a bluish tinge, which we should think would do equally well out of doors.

J. E. T.

[To be continued.]

EXTRACTS FROM FOREIGN PUBLICATIONS.

FROM a work on Africa and Australia just issued from the press in London, we extract the following lively account of the vegetation of Southern Africa, without, however, vouching for the correctness of all the names. When Linnæus was at work on his Botanical system, he received a large parcel of dried plants from Africa. In his reply he remarks, "You have conferred on me the greatest pleasure, but you have thrown my whole system into disorder."

"The vegetation of South Africa is unique, varied, and beautiful; at the Cape Peninsula in the spring of the year, the whole surface excepting the heaths, &c. is covered with the large *Othonna* (so like the daisy as to be distinguished only by a botanist,) springing up in myriads out of a verdant carpet, composed generally of the low creeping *Trifolium melilotos*, the *Oxalis cerima* and others of the same genus, varying through every tint of color from brilliant red, purple, violet, yellow, down to snowy whiteness; and the *Hypoxis stellata*,* or star flower, with its regular radiated corolla, some of golden yellow, some of a clear unsullied white, and others containing in each flower white and violet and deep green are equally numerous, and infinitely more beautiful. Barrow elegantly observes that whilst these are involving the petals of their showy flowrets at the setting sun, the modest *Ixia cinnamonea* (of which there are two varieties,) that has remained closed up in its brown calyx all day, now expands its small white blossoms, and scents the air throughout the night with its fra-

* *Hypoxis erecta* is rather common in our woods and pastures, it is a small bright yellow flower, the petals of which form an elegant star; it continues sending up spikes of flowers from the end of May until October, its lively appearance has gained it a place in our garden.

grant odor. The tribe of *Ixias* is extremely elegant and numerous, one species bearing a long upright spike of green flowers.* The *Iris*, *Moræa*, *Antholiza*, and *Gladiolus*, each furnish a great variety of species, not less beautiful than the *Ixia*. The *Gladiolus* (*Africaner*), with its tall waving spike of striped, or of deep crimson flowers is uncommonly elegant. The *Liliaceous* class are exceedingly grand, particularly the *Amaryllis*. The sides of the hills are finely scented with the family of the *Geraniums*, exhibiting such variety of foliage that it has been supposed this tribe of plants might imitate, in their leaves, every genus in the vegetable world. The *ericas* (*heaths*) have long been acknowledged to be pre-eminent in variety and beauty at the Cape, and flourish equally on stony hills, or sandy plains. That species called the *Physodes*, with its clusters of white glazed flowers, exhibiting in the sunshine a very beautiful appearance, is peculiar to the swampy crevices of lofty mountains, as is also a tall, elegant frutescent plant, the *Cennæa mucronata*. Little inferior to the *ericas* are the several species of the generas of *Polygala*, *Brunia*, *Diosma*, *Borbonia*, *Cliffortia*, &c., and which it would be beyond my limits even to enumerate. Nowhere, in fact, can the botanist find a richer, and more delightful field for his interesting pursuits than in Southern Africa, and its adjacent coasts. An endless variety of frutescent, or shrubby plants grow in wild luxuriance, some on the hills, some in the deep chasms in the mountains, and others on the sandy isthmus of the Cape; but it is singular that of the numerous *Protea* indiscriminately produced on almost every hill on the colony, the *Protea argentea* is confined to the feet of the Table Mountain, and has not been found in any other part of the world. This beautiful shrub has been aptly termed the silver tree, its rich foliage being of a lustrous satin, with a soft texture, as if wove with a pillowy down, offering a deep contrast to the dark foliage of the surrounding oak, and the still deeper hue of the stone pine. The *Conocarpa* (*Kreupelbroom* of the Dutch) grow along the sides of the hills; the bark, is employed for tanning leather, and the branches for firewood. The *Grandiflora speciosa*, [*Query*, Ed.] and *mellifera* grow everywhere in wild luxuriance, as do also the large kinds of *Ericas*, *Phyllicas*, *Brunias*, *Polygalas*, *Olea capensis*, *Euclea racemosa*, *Sophora*, and many other arboraceous plants. The *Palma Christi* (*castor-oil plants*), and the *Aloe* are met

* *Ixia viridiflora*, mentioned in one of our preceding numbers as a desirable flower to introduce into this country.

with every where in great plenty. The dwarf mulberry flourishes, and the *Myrica cerifera** (from the berries of which a firm and pure wax is procured by simple boiling,) is wild in abundance on the heathy sides of the hills. Avenues of oak (*Durmast*) trees and plantations of the white poplar, stone pine, &c. are to be seen near most of the country houses. The most valuable trees at the Cape are the Stink wood, a species of *Quercus*, (oak,) peculiar to South Africa, and the Geel hout, or yellow wood (*Taxus elongatus*, Linnæus,) both of which are excellently adapted for building, furniture, and all domestic purposes. They generally attain a height of fifty feet, with a diameter of ten. In the eastern districts, there are various species of the euphorbia, strelitzia, crassula, aloe, briony, beautiful scarlet cotelydons, jessamines, &c. In the neighborhood of Graham's Town, where the climate is probably one of the finest in the world, the coralodendron grows as tall as the stately oak, and in the spring produces great clusters of deep scarlet flowers from a dark velvet calyx; it is hardly possible to imagine the brilliance and beauty of its appearance, the whole of its branches being covered with blossoms. The *Strelitzia regina* produces flowers in the greatest profusion. What we consider beautiful specimens of geranium, are here treated as garden weeds, and rooted out to make room for more favorite plants, but the colonists often form the garden hedges of the ivy leafed geranium. The Karoo desert is chiefly covered with varieties of mesembryanthemum, crassula, stapelia, and euphorbia, with tufts or bunches of wiry grass, expanding extensively after rain. Several species of the indigofera, (indigo plant,) grow wild; the cactus (on which the Cochineal insect feeds) thrives; various species of the *Gossypium* (cotton plant) flourish in the eastern parts of South Africa, and of several varieties; the tea plant, a hardy shrub, which when once planted is not easily eradicated, has long been in the country, the soil, climate, and face of which bears so strong an analogy to Fokien and the other tea provinces of China, that it is singular no attention has yet been paid to the subject; flax yields two crops in the year, and the tobacco plant is large and of a fine odor. Hemp, tobacco, opium, cotton, silk and even tea may one day become extensive articles of export from South Africa. Of fruits there is every possible variety belonging to the tropical and temperate zones — oranges, lemons, citrons, (several

* *Myrica cerifera* is in plenty on our hills, but to manufacture wax from it is too expensive.

kinds) figs, guavas, grapes, melons, pomegranates, shaddock, quinces, jambos, loquats, peaches, nectarines, pears, apples, plums, mulberries, raspberries, strawberries, gooseberries, &c. almonds, walnuts, hazelnuts are all large and of excellent flavor. There are a great variety of grapes grown at the Cape, and equal to those of any part of the world; a large white Persian grape (haenapod or cocksfoot) yields a delicious but expensive wine, but the grape being fleshy is generally planted for the purpose of being converted into raisins. The vine is generally planted at the Cope of Good Hope as I have observed it in Normandy, that is, in rows like gooseberry bushes; — at some vineyards such as Constantia, the vine is supported on frames raised a few feet above the earth, or on lofty trellises along which it spreads in luxuriant richness. On an acre of ground may be planted (after the gooseberry fashion) 5,000 vines which will yield five leaguers or pipes (760 gallons of wine,) the average wholesale price of the leaguer being eighty shillings.”

PAXTON'S HORTICULTURAL REGISTER, *Edited by* JAMES MAIN, for September, 1835. This is again a most interesting number, from which we shall therefore make rather copious extracts.

There is a sensible paper on Mr Mearn's practice of coiling the vine. “Considering coiling only as a new method of propagating the vine, it deserves commendation, entirely on the principle of its causing the production of a greater birth of radicles than either common layers or cuttings make in the first year, though it is notorious that layers of this year may be so treated as to bear plentifully in the next. Still the plan by which the greatest number of roots can be prompted into action from a young plant intended to be afterwards confined to a limited space, and fruit expected from it in a short time, must be preferable to another which promises no fruit until a sufficient force of roots be formed.

“It is understood that several practical men have tried coiling without success. This perhaps has happened in consequence of the essayist expecting more from the scheme than can be reasonably expected. If the coils were too short, or imperfectly ripened before they were severed from the parent tree, or if forced too early and too rapidly, no success could follow such attempts; and therefore it is not quite candid to scout the idea merely from the failure of a first trial; for although coiling is never likely to become a standard practice in the routine of gardening, yet under some circumstances and in some situations it may be a useful auxiliary expedient.”

Having mentioned the *Campanula pyramidalis* in our article on the *selection of flowers for the pleasure garden*, the succeeding extract on its cultivation is very opportune, the variation necessary to adapt it to this climate will probably be, to grow them in large pots that they may be protected during winter in the cellar, and to place them in a shady situation, taking care always to keep them moist with liquid manure. We have raised several seedling plants this summer both of the white and the blue, on which we intended to try different experiments of culture, having grown them very successfully in Europe, but always from cuttings by which the long process of seedlings is somewhat curtailed ; we do not however remember them more than six and a half or seven feet high, yet this makes a most magnificent show. If they are once seen here in perfection they will certainly become more common, and be more saleable than the *Hydrangea*.

“ About the beginning or middle of May sow the seeds on a light soil in a warm situation under a hand glass. Cover them about a quarter of an inch deep. After the plants appear above the soil they should have air, increasing it as the plants get strength, never allowing the plants to get dry or they will make but little progress. When they get about one inch high they should be planted in a bed prepared beforehand ; the soil of this bed should be thrown out to the depth of one foot, and on the bottom lay a few inches thick of good rotten dung, filling up with rich light soil.

“ In pricking out the plants, care must be taken not to break or damage the roots if possible. When they are planted about an inch of dung should be spread over the surface amongst the plants to retain moisture. An east or west aspect is better than north or south. If the weather prove dry, the plants should be regularly supplied with manure water. By autumn they will have made great progress and be strong plants. Through the winter they should be protected from severe frosts, by having a little loose hay or straw laid over them, but not so heavy as to break the leaves of the plants.

“ In March following the plants should be examined ; if any have the appearance of throwing up a flowering stem, the plant should be carefully lifted, and the flower stem cut off, in the same manner as in cutting sea-kale, leaving a few buds to each crown. The lifting of the plant is to retard its growth ; for if cut over and not removed it would quickly shoot forth more flowering stems to the great hurt of the plant. If the weather be dry the plant should get a regular supply of dung-water at least three times a week, for it is only by supplying

them liberally with manure in a liquid state that we can expect much success. The plants by autumn will be very strong and will require a little more care in protecting through the winter. After the plants have done growing in October the ground should be covered to the depth of three or four inches with saw-dust or coal ashes, but not so deep as to cover the point of the shoots. In the third year before they begin to grow they ought to be taken to the flower garden, with their balls and roots as entire as possible and either planted in beds prepared for their reception or singly. They should be planted in rich earth in a warm situation where they will have the benefit of pure air; a few may be put in pots for ornamenting the greenhouse. As the plants advance in growth they should be supported by stakes. It may seem incredible to some of your readers to be informed, that the plants treated in the manner above described will grow to the height of between eight and nine feet covered with a profusion of bloom to within a foot of the ground. The plants being supplied with dung-water causes them to grow so luxuriant as to throw out a great quantity of side shoots, and these also throw out others which in their turn flower, and cause the plants to have a splendid appearance at that season of the year, when most of the flowers that bloom late in autumn are of a yellow color.

“ I have grown plants with the above treatment producing upwards of forty shoots, all in flower at one time, with a centre shoot eight and a half feet high. After the plants have flowered they may be destroyed, for they will not be found worth bestowing any trouble on; indeed most of the plants will die.

“ Gardeners in general cultivate this plant under a wrong idea, that is, if any dung be added to the soil, it is certain death to the plant. Now this is the result of giving ear to persons who have never put this plan into practice. This theory has been handed down from father to son, and from master to man since the days of Gerarde.”

In an article on the question *whether the publication of the successful or unsuccessful practice of Gardening contributes most to the improvement of practical readers*, are some observations, on gardening periodicals, which certainly not only in England but in other European countries have mainly contributed to increase the taste for horticulture, and consequently the happiness of thousands.

“ Gardening has been less subject to be disfigured by erroneous or irrelevant writings than its sister art (Agriculture) not only because it is an employment more definite in execution, but also because its

professors are never on an equality among themselves, it is less invaded by amateur scribblers, and its practical excellences or defects more universally known. This happens in consequence of the fraternal intercourse of gardeners with each other, from the custom of juniors passing from one celebrated place to another in pursuit of their business, and from their general character as reading men.

“ This character gardeners have long enjoyed ; and since gardening periodicals have been set going by the indefatigable Mr Loudon, literary gardeners and gardening have very much increased. That such periodicals are serviceable to mankind is undeniable, and though their contents are neither always new, nor excellent, yet among other things they go far to answer the question at the head of these remarks, not indeed by the insertion of voluntary admissions of failures in practice by unsuccessful practitioners themselves, but by the criticism of neighbors and tourists, whose communications if candidly and courteously written for the sake of professional truth are sure to find a place in those periodicals.

“ Criticism on what is done or omitted to be done by others has often a snarling carping kind of aspect, and too frequently gives offence to the parties whose places are pointed at, more especially in matter of taste. In this affair every man has what he calls his own (taste) and should certainly be allowed to enjoy it undisturbed, provided he does not impose it on others, or trumpet it forth as the acme of perfection. Censure on the want of space or of high keeping in gardens, is much oftener caused by want of means than by want of either taste or propriety. Such circumstances are not legitimate objects of criticism ; but on principles of practice, or of their right or wrong application, every one may exercise his own judgment, and freely canvass men and measures, as may appear to him necessary for banishing error or for the maintenance of truth.

“ This gives periodical publications whether on arts or sciences an inquisitorial character, and while they are kept pure from low abuse and frivolous petulance, raises them in the estimation of readers into a kind of tribunal to which all will cheerfully pay a due deference. Viewed in this light periodical publications have a peculiar value.

“ Any error which may creep into one number is sure to be corrected in the next or some following one : and as refutation must be accompanied with some discussion pro and con, facts are elicited or ideas broached which but for the first mistake or misstatement would have perhaps laid dormant forever.”

On the Black Lisbon Grape, by W. BRISTOL, gardener to Charles Huit, Esq. "I have frequently felt sorry on going into most hot houses to see the bunches of this grape so deficient — to find here and there a good full sized berry and all the others small and good for nothing, or missing altogether. I have for a number of years practised the following plan, and always found it to answer well, the bunches when attended to as stated below have invariably been equal in size and perfect.

"When the trees are in flower take a bunch of any of the black sort and dash it against the Lisbon, so as to impregnate it. The consequence is that this grape will by my plan set and be as perfect in its bunches as any other sort."

This is of course applicable to every other species of grape which is difficult in setting its fruit.—ED.

There is an excellent paper on the cultivation of the mushroom which is hardly of sufficient interest here to extract from.

A letter on Landscape gardening, describing the owner's park and grounds is amusing and instructive, we may perhaps, give part of it in a succeeding number.

A communication on the *Love of Flowers* is very well written, but bears rather hard on the mere cultivator of florists' flowers.

"This refinement in flower-craft never disturbs the general lover of flowers. He has his beds of tulips, hyacinths, ranunculuses, &c. and from every individual contained in his collection he derives unalloyed pleasure. He is not tortured by that fastidiousness of *propension* (for taste it cannot be called) which will make him turn away disgusted from a beautiful tulip, merely because it is a somewhat foul *bizarre*, or an imperfect *bybloemen*. Whether a hyacinth be single or double, whether with a plain or a colored eye, if it be a well grown stately flower it meets his approbation. Nor is his regard confined to the narrow limits of the arch-florist; he bestows attention on every bud that blows, whether the early germs of spring, the ample blossoms of summer or the parting glories of autumn. * * * *

"Unluckily for the exclusive notions of the thorough bred florists many of their exquisites are monstrous, and as far removed from the simple elegance of nature as art and a vitiated fancy can make them."

There is much truth in the above extracts, yet the labors of the florist are not to be altogether despised, nor is he to be dismissed with so much contempt; without his labors, where would have been the magnificent collection of Dahlias which have recently attracted, and

will always continue to attract such crowds of admirers? where the beautiful camellias, from which even the botanist cannot withhold his tribute of admiration. Why may not flowers as well as fruits be improved by cultivation? it is certain that florists' flowers are sometimes, particularly in the eye of the botanist, distortions, but this is not always the case. He is wise who does not condemn the pursuits which afford pleasure to others although not exactly in his own taste. The astronomer, the geologist, the historian, the botanist, are each too apt to set the highest value on the subject of his own study, and the diminution of this feeling is one of the most prominent uses of the stated meetings of scientific men so lately introduced, and with such happy effect in Europe.—ED.

SMITH'S FLORISTS' MAGAZINE.—This is a new publication, the first number of which was issued last July, and is designed expressly to meet the taste which is so much increasing for florists' flowers. The August number contains excellent figures of *Rose tourterelle*, the Turtle dove rose, and the Celestial rose, the Duke of Southerland Dahlia, the Pandora tulip, the Duke of Devonshire and Queen of Sheba carnations. It professes in process of time to give figures of all the first rate florists' flowers cultivated, with full descriptions, and directions for treatment and cultivation. We wish it success, and shall not fail occasionally to transfer portions of the information it contains into our pages.

From an account of the Journal of the Royal Asiatic Society of Great Britain and Ireland, August 4, 1835, we gather the following novelty from Ceylon.

“Among the great number of trees producing fruits, nutritive and medicinal, oils, resins, flowers, fibres for cordage, &c. &c., there is one called the *Steam tree*, from the roots of which when cut steam issues.

“The trees of Ceylon are also enumerated, and are equally various for color of the wood, weight or lightness, durability, fitness for house and ship building, carpentry, furniture, ornament or other uses.”

CURTIS'S BOTANICAL MAGAZINE, BY DR. W. J. HOOKER, for September, contains colored figures and description of

Crescentia ayete, *Calabash tree*, *Didymia angiospermia* and *bignoniaceæ*, a magnificent West India plant, which flowered in the stove of C. Horsfall, Esq., Liverpool. It is quite common in the

tropics; and the shell of its fruit is used for all sorts of domestic utensils, it being sufficiently hard to bear fire enough to boil water contained in it several times before it is destroyed. It is a tree above twenty feet in height, readily distinguished from all others, by its peculiar habits, sending forth large, horizontal, scarcely divided branches, which bear fascicles of leaves at various distances.

Pæonia Russi, Crimson Pæony, Polyandria digynia and ranunculaceæ. A beautiful single flower, differing much in foliage from *P. tenuifolia*; the numerous yellow stamens, and stigmas are very handsome.

Cratægus Coccinea—*Large flowered American Whitethorn*,—Icosandria di-Pentagynia and Rosacea, another of our beautiful native plants, adorning the pages of this valuable London periodical, in which it is remarked that “This is an extremely beautiful plant, and assuredly one of the greatest ornaments of our shrubberies, loaded as it is in the month of May with its large clusters of white, but scarcely fragrant blossoms. The leaves too are copious, and of a delicate yellowish green, much lobed and finely serrated at the margin. It is a native of North America, from Canada to the Southern United States.” It grows in a variety of places near Boston.

Vaccinium corymbosum and Pennsylvanicum,—Decandria monogynia and vacciniæ. These are the whortleberries so common in this neighborhood, which are cultivated in the gardens in Europe with much assiduity. This tribe wants the supervision of some able botanist on the spot where they naturally grow, many mere varieties would no doubt be differently arranged.

Cassia glandulosa, *Glandular leaved Cassia*,—Decandria monogynia and leguminosæ, one of the most elegant of this tribe—the leaves are numerously pinnated, having 12 to 18 pairs of leaflets, the flowers arising from the base of the general stem. A West India plant, therefore an inmate of the greenhouse.

Sida inæqualis, *oblique leaved Sida*. Monadelphica polyandria and malvaceæ, a beautiful, campanulated, (bell shaped) flower, two inches across when fully expanded; the leaves of a most beautiful green—we are sorry to add that it is necessarily an inhabitant of the stove, being probably from the Brazils; it flowered in the Botanic Garden at Edinburgh, last May.

The first number of the Companion to the Botanical Magazine, also by Dr Hooker, was published on the first of September. It contains three plates with a variety of most interesting information; we

make some considerable extracts to shew in what estimation American botanists and botany are held in Europe.

“If ever there was a period when more than at any other, a JOURNAL was required which might give an account of the progress of Botanical science, it is surely the present, when thanks to the blessings of a long continued and almost universal peace, there is scarcely a part of the world of any extent which has not lately been the field of some botanical discoveries.

“North America, especially the United States, bids fair to have its Botanical riches as well known and as faithfully described as many parts of Europe, and we are happy to be able to announce that our valued friend, Dr Torrey is preparing a *Synopsis of North American Plants*, arranged according to the natural method. It is a work that has long been called for, and it is fortunate for science that the execution has fallen into such able hands. In this laborious employment-Dr Asa Gray lends his valuable assistance.

“Mr Nuttall, who, though he appears to have resigned the Botanical chair in the university of Harvard College, seems to be as ardently devoted to Natural History, and particularly Botany as ever. In the transactions of the American Philosophical Society he has commenced his *collections towards a Flora of the Territory of Arkansas*, arranged according to the natural orders. This memoir will prove extremely interesting to the subscribers to Mr Drummond’s collections, since many of them, especially from the interior of Texas, prove identical with Nuttall’s discoveries in Arkansas, two countries not very remote from each other.

“It is observed by Mr Nuttall, of the superb *Cyamus luteus* (*Nelumbium luteum*, Will.) that the Osages and other western natives, employ the roots of this plant, which is of common occurrence for food, preparing them by boiling. In form, the tubers resemble those of the Batata, sweet potato, and are traversed internally by five to eight longitudinal cavities. They are found at the depth of twelve to eighteen inches beneath the surface of the earth, and are connected by means of running roots. The tubers arrive at maturity about the time the seeds begin to ripen, before that time they abound with a milky juice in common with the whole plant. When fully ripe, after considerable boiling, they become as farinaceous, agreeable and wholesome a diet as the potato. Two other valuable papers on American botany are given by Mr Nuttall, in the 7th vol. of the Journal of the Academy of Natural Sciences, of Philadelphia; the

first entitled, a catalogue of a collection of plants, made chiefly in the Rocky Mountains or Northern Andes, towards the sources of the Columbia river, by Mr N. B. Wyeth. The collection, Mr Nutall informs us, was made wholly on the returning route of this gentleman from the falls of the Columbia to the first navigable waters of the Missouri; when pursuing the remainder of his route down the rapid current of that river, scarcely any further opportunity occurred of adding to the Herbarium. The number of the species, and their interest to the Botanist, will therefore be duly appreciated when it is known that this was the first essay of the kind ever made by Mr Wyeth; and yet I can safely say that besides their number (there being many duplicates) they are the finest specimens probably that ever were brought from the distant perilous regions of the West by any American traveller. This collection is indeed an extremely important one, amounting to one hundred species, the majority of which are described as new; many of them however, will necessarily be found identical with the discoveries of Mr Drummond, and more particularly of Mr Douglas, in the same district of country. Perfect flowering specimens were obtained of *Lewisia rediviva*, and a figure given of it; but it is deeply to be regretted without any analysis of the parts of fructification; for it is made to constitute a new order of plants under the Flathead Indian name of SPALTHALUMÆ the root being the *Spæthum* of the *Sailish* or Flathead Indians.

“It is probably the highly interesting character of the collection from the Rocky mountains that has induced Mr Nutall himself to join an exploring party, and cross the continent of North America to the shores of the Pacific on the south side of the Columbia river, than which a more interesting journey can scarcely be imagined. Of the particulars of the route, and the nature and success of the expedition he accompanied, I have been unable to learn any particulars, further than that a vessel sent round to meet them with stores, &c. had not arrived, on which account the party had suffered much inconvenience.

“The second paper of Mr Nuttall in the Journal of the Academy of Natural Science, of Philadelphia, just alluded to, is a *description of some of the rarer or little known plants indigenous to the United States, from the dried specimens in the Herbarium of that Academy.* These are chiefly from the Southern States, and consist of eighty-three species, nearly the whole of which were previously undescribed; several of these are however likewise in Mr Drummond’s collections and more may be expected from that indefatigable naturalist during

his journeying in Eastern Florida. In our last mention of Mr Drummond we spoke of his having left New Orleans for Texas, hitherto almost untrodden by the Botanist.

“No wonder therefore it had attractions for Mr Drummond, which were perhaps increased by the circumstance of a small collection of plants falling into his hands which were gathered in that country by M. Berlandier, and which at once shewed how different in general was the vegetation from that of the United States. The particulars of his stay in Texas will be given in the introductory notice to the remarks we shall have to offer on the plants themselves; suffice it to say at present, that he has sent at three separate periods several chests of dried plants, of which the last and by far the most interesting arrival, still remains to be distributed; and that he has besides enriched our gardens with seeds and roots of several new, or little known plants; among them are five species of *Cactus*, some handsome species of *Phlox*, a most remarkable new cruciferous plant, allied to the beautiful *Streptanthus*, and two kinds of *Pentstemon*, which I think may be reckoned by very far the handsomest of this very handsome genus, of these one had been previously discovered by Mr Nuttall on the Red River, and called by that gentleman on account of the great size and general appearance of the flower *P. cobeæ*, the other and more beautiful one appears to be quite new. On his return to New Orleans on the latter end of 1834, Mr Drummond immediately prepared for an expedition to Florida, and sailed for Apalachicola which he reached in January last; there he collected two boxes of specimens which have reached Europe, when finding from the peculiar nature of the country, surrounded by a widely extended waste of sand in almost every direction that it was scarcely possible to reach the southern extremity of Florida except by the very circuitous route of Havana; he embarked for Cuba on the first of February, and intended from thence to reach Key West, so as on proceeding northward to pass through the whole length of the southern peninsula of North America.*

“American Botany has sustained a great loss, and his adopted country a most invaluable member of society in the death of Dr

* We are sorry to be obliged to say that Mr Drummond died at Havana last March, thus adding another sacrifice to that of the unfortunate Mr Douglas to a zeal for a natural history; this is also noticed in the work from which these extracts are made

Schweinitz, of Bethlehem, Penn. so well known for his accurate investigation of the Fungi; he lately became the possessor of Dr Baldwin's extensive Herbarium of plants chiefly collected in the Southern States, and in South America, and had intended publishing some remarks upon them. His death was very sudden, and his collections have been bequeathed to the Academy of Sciences of Philadelphia, and is together with the other valuable Herbarium belonging to that Institution under the able charge of Dr Pickering.

“Dr Barratt, of Middleton, Mss. has undertaken the difficult task of describing the North American *Willows*, a task which perhaps no person is more competent. * * * * *

“Many of the North American species are eminently deserving of cultivation on account of the beauty of their catkins and their foliage, particularly some of those from the North West Coast of America; and we confidently hope that Dr Gairdner who now resides at Fort Vancouver, and Mr Tolmie who is stationed in a most interesting spot, namely at Fort McLoughlin, in Millbank Sound, lat. 52° 5' N. will enrich our collection with many novelties from that rich botanical field.

“There is also an account of the Botanical expedition of Mr Mathews to Peru. He says his collection in plants, animals, insects, and shells is considerable—the result of it has been in Botany alone a collection of ten thousand specimens including nine hundred species. Of these nearly one half has arrived in England. They are all in beautiful condition, numbered and accompanied by a list of stations where gathered, and cannot fail to give the greatest satisfaction to the friends of Mr Mathews, and to reflect the highest credit on Mr Mathews himself. The part arrived is rich in *compositæ* (many of great beauty.) *Mcclastomacæ*, of which he has gathered nearly fifty kinds, there are several *Andromedas*, *Fuchsias*, *Rubiaceæ*, two *Proteas*, several *Laurus*, *Weinmannias*, *Befairias*, &c. &c. We are happy to add, that the remainder are known to be on their way and daily looked for.

“In the notice concerning Mr Drummond's journey is the following passage, from Velasco, mouth of the Rio Brazos, Texas.

“Among the plants are several which I would particularly recommend as deserving of notice for their beauty; two are species of *Coreopsis*, one with flowers twice as large as those of *C. tinctoria* and extremely handsome. There is also a syngenesious plants allied to *Rudbeckia* (probably *Galardia bicolor*, var.) the blossoms are copper

colored, the whole rises to about a foot high, and covers a diameter of three or four feet, I may safely say that I have seen more than a hundred flowers open on it at the same time.

“ Also a fine procumbent *Oenothera* much like *OE. macrocarpa*, and a charming *Ixia* of which I send roots.”

Another passage will give some idea of the hardships he went through.

“ Of the genera *Pentstemon* and *Sabbatia* which are numerous and beautiful, I send many specimens, and also of a lovely *Rudbeckia* which is a great ornament to the prairies here. I could ask a thousand questions about my plants, for I am shut out from all information; though Pursh’s American Flora is among my luggage I can hardly get a sight of it. You may form an idea of the difficulties I have to encounter in this miserable country (more miserable however as to its inhabitants than in any other respect,) when I tell you that all the bird skins I sent you were removed (from the animal) with a common old penknife, not worth two cents, and that even this shabby article I could not have kept had the natives seen anything to covet in it; and that I am obliged to leave behind my blanket and the few clothes that I have brought, because of the difficulty of carrying them, though I feel pretty sure that I shall never see them again. These trifles I only mention to give you some idea of my present situation; they do not affect me much, except as preventing me from pursuing the objects of my journey with the success I could wish.”

There are also accounts of excursions in the neighborhood of Quito, and towards the summit of the great Mountain Chimborazo in 1830, by Colonel Hall, of Quito.

Journal of an ascent to Adams Peak, in the Island of Ceylon, by Colonel and Mrs Walker.

Also an account of the vegetation of the Volcanic Mount Etna, by Dr R. A. Philippi, which contains much interesting information.

J. E. T.

IMPROVEMENTS IN DOMESTIC HORTICULTURE.

BROCCOLI. — We have seen in the market this excellent vegetable, grown at the Farm school on Thompson’s Island, scarcely inferior in size and closeness of head to any raised in England.

Several Cauliflowers were of a good size, although rather too open. We think if this vegetable were grown in deep trenches like celery, but much deeper, so as to form a shade from the great heat of the sun, which draws them out too rapidly and opens the flower, they might succeed better. A rich, loamy soil is, however, necessary to grow them in perfection.

ONIONS. — We purchased a bushel, of Mr Baker in Dorchester, for eighty cents, which exceeded in size any we had previously seen; four selected weighed four pounds, tops cut off; the flavor when cooked was deliciously mild and bland. They were sown in the spring on a light soil, the seed trodden in hard. They succeed the potato onion admirably.

GREEN PEAS are still gathered in many private gardens.

It would be a great service to the community, if the Horticultural Society would offer premiums of ten to fifty dollars for these improvements. It is not merely the amount of money, but the emulation it excites, and the publicity it gives to such exertions—all of which are animating and pleasing to the cultivator.

Panocratium Carolinianum. — Bulbs sent to us from a swamp in Kentucky, we flowered in great perfection in a pot in the open air. We have distributed all our bulbs among amateurs, not having a green-house to protect them during the winter.

A little more general interest in horticulture would introduce here many very beautiful plants from the South.

ST MICHAEL'S PEAR. — This old favorite and truly delicious fruit has been this year more generally exempt from the disease which had nearly annihilated it for a succession of years. It has consequently again been tasted in its former perfection. From our microscopic observations on this disease, which we acknowledge were not quite so numerous or so early made as we could have wished, it appears to us that it is a peculiar parasitical fungus or mould, which, settling and vegetating early on the skin of the pear, alters its nature and prevents its expanding as the fruit swells; and that the sporules or powdery seeds of this fungus remain in the crevices of the bark, or some other place, until the ensuing summer, when they again attack the fruit. The very great severity of the frosts last winter may have destroyed the vegetating power of these sporules, and thus nearly freed the fruit from it this season. Could this be verified, as finding out the disease is half the cure, means might be found to eradicate it, there being several applications injurious to fungi, and really this pear is so very

superior to many of the newly imported, that to rescue it from destruction is worth some trouble. For the information of those who are inclined to follow up this idea, I will add that Fries, who has spent many years in observations on fungi, says that the sporules are so small as to be scarcely visible to the naked eye, rising like thin smoke by the attraction of the sun and other means, or carried up by the evaporation of moisture, so that it is difficult to imagine a place from which they can be excluded.

The parasitical (that which lives on other bodies) species are, the dry rot, *Polyporus destructor*, *Mercurius lacrymans* and *vastator*, the blight in corn, *Puccinia graminis*, the rust in corn is a variety of *Æcidium*, the smut and ergot and many others. Also, that it is a remarkable circumstance, which deserves more inquiry, that the growth of minute fungi is effectually prevented by any kind of perfume; that books in the neighborhood of others bound in Russia leather will never become mouldy, nor will any other substance if placed within the influence of any essential oil.

Is this Pear the same as that named in the French catalogues as the *Doyenné doré St Michel*? If so, fresh scions might be obtained from Europe free from this disease, and thus the species renewed.

J. E. T.

MISCELLANEOUS ARTICLES.

COLLECTED BY T. G. F.

ORCHARDS. It is remarked in *Vancouver's Survey of Devonshire*, that "A very common practice prevails of foddering cattle during winter in orchards, when it can be done without injury to the young trees, dressing orchards at the same time and manner as is usual to manure mowing grounds is also found very much to increase their produce; but to cultivate orchards with potatoes is very much disapproved of, not only on account of the exhausting nature of that crop, but from its tillage, the ground becomes so much loosened, as frequently to expose the trees to be blown down by the winds.

Throughout the whole of the country, long exposure has shown, that the same fruit growing in a moist loam, or clay bottom, will produce a vastly superior cider to that growing on or under strata of sheer sand or gravel. An acclivity looking to the south east is the sit-

uation always preferred here for the culture of the apple tree. The size of the fruit is much kept up, on trees not fast verging to decay, by cutting off the suckers, opening the top by pruning away all the wild, dead and unprofitable branches, and dressing each tree annually at its root, with a compost of dung, lime, and way soil, in proportion of one team or horse load to two trees. The orchard thus invigorated and opened to the influence of the sun and air, the moss with which the branches of the trees had been clothed for many years fall off, and the improvement in the size, quantity and quality of the fruit is not less evident than the healthy and flourishing condition of the tree.

GARDENER'S WORK FOR NOVEMBER.

It is now quite time to attend to preserving the roots and such other products of your garden as still remain ungathered. Mr M'Mahon's method of preserving roots is as follows :

“ Previous to the commencement of severe frost, you should take up, with as little injury as possible, the root of your turnips, carrots, parsnips, beets, salsify, scorzonera, Hamburg, or large-rooted parsley, skirrets, Jerusalem artichokes, turnip-rooted celery, and a sufficiency of horse-radish, for the winter consumption ; cut off their tops, and expose the roots for a few hours, till sufficiently dry. On the surface of a very dry spot of ground, in a well sheltered situation, lay a stratum of sand two inches thick, and on this a layer of roots of either sort, covering them with another layer of sand, (the drier the better,) and so continue layer about of sand and roots till all are laid in, giving to the whole on every side, a roof-like slope ; then cover the heap or ridge all over with about two inches of sand, over which lay a good coat of drawn straw, up and down as if thatching a house, in order to carry off water and prevent its entering the roof ; then dig a wide trench round the heap, and cover the straw with the earth so dug up, to a depth sufficient to preserve the roots effectually from frost. An opening may be made on the south side of this heap, and completely covered with bundles of straw, so as to have access at all times to the roots, when wanted either for sale or use.

“ Some people lay straw, or hay between the layers of roots, and

immediately on the top of them; this I do not approve of, as the straw or hay will become damp and mouldy, and very often occasion the roots to rot, while the sand would preserve them sweet and sound.

“All these roots may be preserved in like manner in a cellar; but in such a place they are subject to vegetate and become stringy earlier in spring. The only advantage of this method is, that in the cellar they may be had when wanted, more conveniently during winter than out of the field or garden heaps.

“NOTE.—All the above roots will preserve better in sand than in common earth; but when the former cannot be had, the sandiest earth you can procure may be made use of.”

PRESERVE YOUR CABBAGES.—The principal gardener in the shaker establishment in New Lebanon, Columbia County, N. Y. directs not to pull up cabbages in autumn “till there is danger of their being too fast in the ground to be got up. If there happens an early snow it will not injure them. When they are removed from the garden, they should be set out again in the bottom of a cellar. If the cellar is pretty cool, it will be the better.”

PRESERVE YOUR CELERY.—On the approach of frost take up a part of the crop, and lay it under sand for winter use. It may be packed in boxes in a warm cellar, leaving the tops and leaves open to the air, and used when wanted.

SOW CROPS FOR SPRING.—You may now sow the seeds of rubarb, sea-kale, skirrets, parsnips and many other kinds, which are somewhat slow in vegetating, and they will come forward early and grow vigorously in the spring. In the fore part of this month you may manure and trench the ground which is intended for early crops, and, if it be of a stiff heavy nature, lay it up in ridges to receive the benefit of the winter frosts.

FRUIT GARDEN, ORCHARD AND NURSERY.—This is a good time as can be chosen for planting orchards. If the ground be dry and loamy, (which is the only soil proper for an orchard,) November is the month for planting the seeds of apples, pears, quinces, plums, cherries, peaches, nectarines, walnuts, chesnuts, filberts and indeed every kind of fruit trees, and forest trees. These seeds may be sown in drills, or broad-cast in a bed, and covered from an inch to two inches in depth, according to the lightness of the soil and the proportionate size of the stones. If they are covered lightly, the young plants will easily make their way through the soil, and when they appear above ground,

if in drills you can draw a little earth to their stems, and if in beds sift a little earth over them. A young orchard should not be planted in the place of, or adjacent to an old one, lest it be immediately infested with the curculio, and other insects which generally are injurious to old orchards, and are kept to colonize young trees in their vicinity.

Transplanting trees should be finished as early in November as possible, in order that plants may have time to push out new fibres before the frost sets in. If planted at a late period, they seldom put out fibres before spring, and the powers of vegetation, it is supposed are weakened by being suspended.

In the early part of this month it will be well to sift a little earth between and among plants so as nearly to come up to the leaves, which will be of use in every climate and country, to every sort of seedling, tree, or shrub, which in consequence of their small size the first year's growth are liable to be thrown out of the ground by frosts, or injured by drought.

Stake and tie up all newly planted trees, which are in open exposures, in order to prevent their being agitated by wind. Lay light litter of some kind, a good thickness, over the roots of tender and choice shrubs to protect them from frost.

MASSACHUSETTS HORTICULTURAL SOCIETY.

Saturday, Oct. 10, 1835.

EXHIBITION OF FRUITS.

From Stephen Williams, Esq., Northborough, 3 varieties of apples and 1 of pears.

From Charles Bowen, pomme d'Api, lady-apple, and St Michael's pears.

From Judge Buel, Downton pippin, Rosinkruger, Pigeon rouge, Alexander, and King of the pippins, apples.

From Messrs Winship, Capiaumont and Croft Castle pears. [The Croft Castle is one of the new pears raised by Mr Knight, and scions distributed by Mr Lowell: as far as could be judged from a single specimen it will prove a fine fruit.]

From Charles French, Esq., of Braintree, sweet apples for baking.

From Dr S. A. Shurtleff, Urbaniste pears and 1 sort unnamed.

From Messrs Hovey, Heathcote and St Michael's pears.

From John Prince, Esq. Naunkeag pears.

From Hon. John Lowell, Tillington and Urbaniste pears.

From S. Philbrick, Urbaniste, Capiaumont, and Wilkinson pears.

From Madame Dix, large basket of Dix pears.

From M. P. Wilder, Van Mons pears.

From Mr John Clapp, of Reading, Platt's Bergamot, and Seckel pears, five sorts of apples, and one ear of Tuscarora corn.

From Mr Manning, Quetsbe d'Italy, Imperial Violet, and Antwerp plums, Jalousie, Buffum, Urbaniste, Washington, Heathcote, green Yair, Rousselette de Rheims, and Belle Luerative pears; Lyscom and Snow apples, and Seedling blood:ach for preserves.

From Mr Israel Ames, Boston, a basket, containing beautiful specimens of black Hamburg and golden Chasselas grapes.

From Dr Robbins, of Roxbury, a basket of red apples, with red flesh, handsome and good.

For the Committee, ROBERT MANNING.

REPORT ON VEGETABLES.

Exhibited from Capt. Daniel Chaudler, of Farm School, Thompson's Island, a Mangel Wurtzel, weighing 22 pounds.

The Committee on making their *first* report, as above, are encouraged to expect future exhibitions of the products of the kitchen garden; and would most respectfully solicit attention to this most important branch of Horticulture, which might be essentially advanced by competition. The Horticultural Society will be found an excellent medium through which any improvements, or new introductions, may be promulgated.

The committee are pleased to witness the improved state of things, and advancing interest manifested in the ornamental department of Horticulture. This is right, and as it should be. But while the floral garden is increasing in beauty and splendor, let not the kitchen garden be neglected. There is room for improvement.

All those who have Pumpkins, Squashes, Beets, Carrots, Parsnips, Turnips, Cabbages, &c., not forgetting the Cauliflower and other delicate vegetables, are invited to further the views of the committee.

GEO. C. BARRETT,

Chairman of the Committee

on the Products of the Kitchen Garden.

Saturday, Oct. 17.

EXHIBITION OF FRUITS.

From Hon. John Lowell, Downton and Capel pears.

James Eustis, South Reading, Kilham hill, Jelly flower and sweet russet apples.

Mr J. Lincoln, Hingham, Seek-no-further apples.

Mr J. P. Davis, Bergamot Sylvange pears from Philadelphia.

Mr J. M. Ives, Salem, Semiana plums, so called in Boston and vicinity.

John Prince, Esq., Urbaniste pears.

W. Oliver, Esq., Dorchester, Wilkinson pears.

Mr Jacob Dean, of Mansfield, a basket of fine apples.

Mr Cushing, St Michael and Bergamot Sylvange pears.

E. Vose, Esq., Orange Quinces, St Michael, Marie Louise, Tillington, Capiaumont, Urbaniste, Wilkinson, and Long Green pears.

Daniel Adams, Esq., of Newbury, large baking pears.

Mr Manning, Surpass Virgalieu, Bezi Montigny, Saunders' Beurre, and a seedling pear, raised by J. S. Cabot, Esq., of Salem.

Mr Hunt, of Brighton, pears from trees imported from France.

Messrs Winship, Brighton, Hybrid Walnuts, from trees raised from the Madeira Nut, or English Walnut, impregnated with the native Butternut. The following letter from Mr Winship, is published for the information of those who wish to propagate this truly valuable fruit.

Brighton, Oct. 17, 1835.

Gentlemen:—Herewith you have the fruit of a Hybrid Walnut, raised from the English, or Madeira Walnut, impregnated with the Butternut. The trees were presented to me by Gorham Parsons, Esq. It is a vigorous, strong growing tree, and endures our climate, without sustaining the least injury, in the most inclement winters. As we consider it a fine production, and a valuable acquisition in Horticulture, we should like to have it introduced to public notice, and will with pleasure supply any one with scions.

Respectfully yours, &c.

JONA. WINSHIP.

To the Committee on Fruits.

Among so large a collection of fine pears, the Urbaniste, Surpass Virgalieu, Bergamot Sylvange, and Downton, deserve particular notice, as first rate fruits; the Downton is one of the new sorts produced from seed by Mr Knight; it more than realized our expectations, and was second to no pear exhibited to-day. For the Committee,

ROB'T MANNING.

FLOWERS.

The absence of severe frost and the extreme fine weather which has continued without intermission during the month of October, has unusually prolonged the weekly beautiful displays of flowers in the Horticultural Society's rooms. It would be tedious to our general readers to give a list of the various names of those exhibited, particularly as we are preparing an article for our next number in which this omission, if can be so called, will be properly supplied. The dahlias from Messrs M. P. Wilder, Sweetser, Walker, Carter, (of the Botanic Garden) Kenrick, and others, have been beyond description splendid, and we have no doubt, will encourage many to become cultivators of this magnificent *Florist's flower*, particularly when a *certain* method of insuring success in treatment of them, is made known by the press. We anticipate next year, at least five exhibitions for one this, and if the public call for an exhibition next season, and the Horticultural Society offer premiums, there is no question but Massachusetts may amicably challenge a display with any competitor. We cannot, however, pass over in silence, the beauty of other flowers of which bouquets have been exhibited by Messrs Winship, Kenrick, Walker, Hovey and others, and hail with delight the increasing interest this pursuit seems to attain in society.

J. E. T.

THE
HORTICULTURAL REGISTER
AND
GARDENER'S MAGAZINE.

DECEMBER 1, 1835.

ON THE ROSE.

MUCH has been written both in poetry and prose on this subject, yet it remains not only inexhaustible, but interesting; and what is still to be written is almost sure to find readers. It is true the plant is in itself almost inexhaustible, as there are two hundred and five known and described distinct botanical varieties, and nearly *two thousand* named sorts raised from seed: its cultivation comprises almost every refinement in horticulture, as it is propagated by most known methods of increasing plants, by seed, cuttings, layers, suckers, and budding. New and beautiful varieties are constantly produced from seed. Some species are hardy, others tender; some are difficult of cultivation, while the chief part require little care, and are therefore universally known and dispersed; the early monthly roses usher in the spring; during the summer their beauties are spread in profusion throughout the garden, and the Noisette with many others still linger and adorn the autumn, until the stern hand of frost arrests each vegetable form: even then they yield their charms to the ingenious hand of luxury, and ornament the greenhouse.

Their delights are not very evanescent; equally conspicuous in bud, in full perfection, and in fruit; add to these their unequalled fragrance, the chaste brilliancy of their tints, the wholesome medical properties of the whole rosaceous tribe, and we must cease to wonder at the general interest excited by them, or that a unanimous voice has proclaimed the ROSE to be the queen of flowers, and that all hitherto written, said or sung in its praise, is received with atten-

tion by those who pay the homage justly due to the most beautiful of the vegetable creation.

There is something of passion mingled with our sentiments for the rose; we admire the beauty, or are struck with the magnificence or singular forms of other blossoms; but when we view the delicate, tender tints of the expanding bud, and enjoy the delicious fragrance of the full blown flower, we can scarcely help feeling that we *love* the rose.

Botanists have divided the tribe of the roses into eleven sections.

1. SIMPLICIFOLIA. Simple-leaved, without stipules, (a leafy appendage at the base of the leaf or leaf-stalk), the berry bristly. Of this there is only one species, a native of Persia, commonly called the berberry-leaved rose; this will explain what is meant by simple-leaved.

2. FEROCES. Fierce — from the very numerous thorns which cover the branches. Of this there are three species, one from Japan and two from Kamschatka; one of these latter, we have seen in gardens in this vicinity.

3. BRACTEATÆ. With bracteas, (small leaves on the flower-stalk under the calyx). Of this there are four varieties, amongst which are the well known *R. microphylla* and the *Macartney rose*; the foliage of these is shining and very beautiful; the fruit woolly.

4. CINNAMOMÆ. Character agreeing with the Cinnamon rose. Of this there are twentyone varieties, including *Rosa lucida*, which ornaments the swamps near Boston with its flowers and dark fruit, and the Cinnamon rose, so common near cultivated grounds in this vicinity.

5. PIMPINELLIFOLIA. From the resemblance of the leaves to those of the *pimpernel* or *anagallis*. To this section of fortytwo varieties, belong the yellow American rose, *R. lutescens*, of Pursh, the sulphur-colored rose, the celebrated Scotch rose, *R. spinosissima*, of which above one hundred and seventy seedlings are named in catalogues, *R. stricta*, a native of New England, and probably several others, which have been of late years discovered in Kentucky and in other parts of the Union, and described by Rafinesque. This section may also be readily distinguished by the numerous leaflets, generally from seven to fifteen in number.

6. CENTIFOLIA. Characters agreeing with what is usually called the hundred leaved rose. To this section of ten varieties belong the moss, the hundred leaved, the damask, and *R. gallica*; consequently,

also, great part of the multitude of garden varieties before mentioned, which have been raised from seed.

From the damask is probably obtained most of the essential oil called attar of roses. If those who distil rose-water would leave it immediately after distillation in large shallow pans for two or three days, they would find an oily film on the top, which may be skimmed off with a feather, and the feather cleaned with a little warm water — this is true attar. In many parts of the East it is manufactured by throwing large quantities of rose leaves into shallow tanks filled with water; after some weeks (depending on the heat of the weather) the oil rises to the top, and is removed for sale. This section may be distinguished from the others by the plants bearing bristles as well as prickles, and by the pieces of the calyx called sepals being divided.

7. *VILLOSÆ. Villous.* Closely covered with long soft loose hairs. The white rose, *R. alba*, is included in this section, which therefore contains some of the most beautiful of the tribe; for instance, the *celestial*, *nova cælestis* (new celestial), *bouquet blanc*, *boule de neige* (snow-ball), *maiden's blush*, and thirty or forty others. The most distinguishing character of this section, is the straightness of the prickles, as in several varieties of the white rose the villousness is not very apparent without the microscope, the hairs being short and adhering close to the stem; the prickles, however, are to be considered as comparatively, not mathematically, straight.

8. *RUBIGINOSÆ. Rusty.* The under side of the leaves being generally more or less covered with brown, rusty-colored glands. To this section belong the delicious scented Sweet-briars, the true Eg-lantine of the old poets, of which sixteen garden varieties have been enumerated, one of them mossy. The native Sweet-briar is called by Pursh *Rosa suavolens*; Rafinesque and Bigelow call it *R. rubiginosa*. One of this section, *R. caryophyllacca*, a native of Podolia, Volhynia and Iberia, has a strong clove scent. A distinctive character of this division is the arched growth of the suckers; this must have been often remarked in the two years old shoots growing near Boston; also, the sepals (pieces of the calyx) are permanent, that is, remain on when the fruit is ripe.

9. *CANINÆ.* Characters agreeing with *Rosa canina*, the dog rose. To this section belong not only the most numerous and common ornaments of the hedges in Europe, but also those valuable sorts the Chinese rose, *R. indica* and its var. *odoratissima*, the tea rose; likewise var. *Noisettiana*, the noisette rose, with its delightful clusters of

blossom. *R. semperflorens*, the everflowering China rose, and *R. pseudo indica*, the yellow Indian rose, are included in this division. I have the names of nearly fifty garden varieties of this section, the chief characters of which are the smoothness of the leaves, the prickles hooked, and the peculiar and grateful flavor of the pulp of the fruit, which contains citric acid, and is often made into a conserve by boiling or baking with sugar.

10. SYSTYLA. From two Greek words, alluding to the styles being connected together into an elongated column. In this section are included all the climbing roses, as *R. sempervirens*, which in Europe is evergreen. I have never seen it here; the fruit is of an orange color, it grows rapidly, and soon covers a trellis with its numerous and fragrant flowers. Of this, the var. *roseclare* has large spreading corymbs of deep red blossoms, and is most probably a hybrid between this and *R. indica*. *R. multiflora*, of which the Boursault and Greville are varieties, also belongs to this section, as does *R. moschata*, from which it is supposed the Persian attar of roses is made; the flowers have a slight odor of musk. The bramble-leaved rose, *R. rubifolia*, a native of this country, is also to be found in this division.

11th, and last, is BANKSIANÆ. Characters agreeing with the Banksia rose. The species of this section are distinguished by their long, graceful, and sometimes climbing shoots, their drooping white and tinged flowers, and shining leaves of three or utmost four leaflets; to it belong the native *R. setigera* of Michaux, the *R. levigata* of Georgia, and several natives of China, one of which, *R. hystrix*, has purple fruit, and another, *R. fragrariflora*, has flowers in corymbs of the size and color of the strawberry.

There remain about forty or fifty varieties, which have not been sufficiently examined to be yet classed in any of these sections; several of these are natives of North America, and particularly of Tennessee and Maryland.

To raise new varieties from seed, as is practised in France and Italy, is rather a tedious affair. Plantations are made, in which the varieties from which hybrids are desired are promiscuously planted, for the purpose of impregnation; the fruit or hips are ripe in October and November; the seeds may be separated by rubbing them in dry sand; they may be sown the following spring in a rich, damp, shady place; the hard shell will not, however, be sufficiently decayed to permit the seed to vegetate until the spring ensuing. The year after, they may be removed from the seed bed into rich, moist soil, protect-

ing them carefully during the winter with litter and pine boughs. The third year, some will blossom, but the majority not until the fourth and fifth year. By something like this process, innumerable varieties have been raised by M. Villaresi, of the Royal Gardens at Monza, in Lombardy, where there is a large shrubbery entirely of *Magnolia grandiflora*, and by many celebrated gardeners in France, as Messrs Noisette, Cels, Soulange Bodin. In England, the climate is hardly warm enough to ripen the seed; consequently little has been done there, except in Scotch roses; but in this country there is ample opportunity of raising new and splendid varieties, and I trust the public will not be backward in encouraging the efforts. I am not acquainted with the exact method adopted by Messrs Winship, but think several of their seedling roses, exhibited this summer at the Horticultural Society's rooms, equal to many imported.

There are several good private collections of these seedling varieties in the vicinity of Boston. The best I have yet seen is that of M. P. Wilder, Esq., of Dorchester, who certainly seems to have spared no pains or expense in importing the choicest sorts; among them was a budded tree rose of *Mousseuse delafleche*, so conspicuous for the long moss which decorates the midrib and edges of the leaves, although the flower is small and only semi-double. There is another of this small-leaved moss variety in France, with a striped flower, (*Mousseuse panachée*) which is worth growing. His striped unique rose, also budded on a tree, is the most perfect and charming of the tribe. The Mexican, Admirable borde rouge, Bobilina, perpetual Philip Ist, Le jeune Henri, Casimer Perier, Palavicini, and many others afforded me the highest gratification. I trust this gentleman will find leisure another season to form a regular Rosarium, where the flowers and habits of each variety may be studied at ease. The occupation of raising new varieties from seed, is almost as exciting as gambling in a lottery, particularly after being once successful in drawing the prize of a superior flower, and dedicating it to some person high in our esteem; I scarcely need add, how much more innocent, how much less liable to bitter regrets.

The easiest and quickest method of procuring a good collection of roses is by budding; the shoots produced from which will, if properly managed, generally flower the succeeding summer. This operation, called shield budding, is very simple, and performed as follows: In August, choose a sound branch of a rose-bush of that year's growth, and make an incision with a sharp knife through the bark in the

shape of a T; raise up the bark forming the edges of this incision from the wood with the nail, or better with a piece of smooth shingle: take a bud from the rose you desire, in the following manner — cut a slice out from the branch about an inch and a half long, and half the thickness of the branch, so that a bud may be about the middle of the slice; with the nail gently remove the woody part, leaving nothing but the bark and the bud, which must be distinctly visible in the bark, so that it is certain it has not separated with the woody part; insert the piece neatly under the incision; after insertion, cut the bark on which the bud is, so that the top fits exactly and closely with the top of the T, and tie up the wound with bass, not too tight. In about three weeks the adhesion of the bud to the stock will be complete. If it is desirable for it to shoot and make wood the same season, all shoots and buds below the operation must be removed, and the branch headed down, leaving one shoot above the bud inserted, to draw up the sap. This is desirable when a slight protection can be given during the winter, because by cutting down the shoot from the bud to two eyes in April, it is almost sure to have many flowers that summer. I pursued this plan last year with four plants — one a bud from *Rosa Grevillea*. I transplanted them into pots in October, kept them in the cellar during the winter, and then plunged them into the open ground the beginning of May, where they flowered in profusion. There is a difference in the stocks on which to perform this operation of budding; the French, who excel in it, generally bud on a tall, strong sucker of a single wild rose, for the purpose of making a tree six or seven feet high, with a head of flowers; and these are exceedingly ornamental, dotted about in low shrubberies; but I have budded with great success on bushes of the common *semi-double white* and on the *maiden's blush*. Last April, I transplanted from the woods two strong suckers of the common sweet-briar, six and seven feet high, and budded with *celestial*, *moss*, *single yellow* and *provins*, which have all succeeded, although they have yet made no shoots. I am told that they will not last more than two or three years, and that in their native situation they only endure this period: this is in some measure true; yet I have never seen one dead, without seeing a thriving young sucker by the side of it, which has evidently drawn away all the sap of the root, and left its predecessor to perish. Now one universal rule with these budded trees, is to keep them free from suckers, or they will quickly die; this is, therefore as true of the wild rose in England and in France, as with the

sweet-briar here. But there is one point I have observed, both with the imported tree roses and with the sweet-briar stocks, that requires much attention—the bark when once wounded, even by roughly tearing off a thorn, seldom heals; the wound enlarges, and finally the brown and dead bark increases so as in a few seasons to become an irreparable injury. Whether this may be cured or stopped by covering the wound with a composition has yet to be tried. The Boursault rose, if tied to a trellis, is also an excellent stock on which to bud, and seldom fails.

Mr J. W. Russell, of Mount Auburn, observes that to be successful in flowering the yellow tea rose, it is better to bud it on a young healthy multiflora or Greville rose, and at the time of heading down to replot it in a mixture of one half good fresh loam, the remainder leaf soil with a portion of sand, observing to give the pot a good drainage.

The most common method of propagating roses is by layers; that is, cutting a shoot half through and pegging it down, where cut, below the surface of the soil, bending up the end of the shoot; this operation is generally performed after the blossoms have ceased, but if a sacrifice be made of the blossoms, and they are layered early in July, and the flower buds be removed, they will make plants fit for removal the following spring; otherwise, they must remain one season in the nursery beds. The moss rose is more difficult to root than most others, and in this climate more tender. I have imported several; those protected lived, the others perished. This method of layering may likewise be adopted with shoots of roses budded, and thus the variety obtained with its own root, instead of having merely the budded stock, the tenure of whose existence is rather uncertain.

Many sorts throw out suckers; these may be removed at once in autumn, or in this climate better in the spring, heading them down to about three or four inches high.

The common monthly roses, *R. indica*, which include the dark red variety *sanguinea*, are best propagated by cuttings, which strike readily if taken off at a joint where the wood is beginning to ripen, and planted in sandy mould under a hand glass, or even without, if kept in the shade.

The French are generally considered to excel in the cultivation of the rose. The greater proportion of the soil used there is a rich, stiffish loam, with some manure; this composition is very retentive of moisture. Where this cannot be readily obtained, mulching the

roots with decayed leaves and dung is resorted to. The pruning as practised in Europe, would hardly suit here, but should be deferred until the spring, just when the buds are beginning to swell; then, for bush roses, cut out all the old wood and every shoot to within six or eight inches of the surface of the soil; this materially strengthens the new shoots, and increases the size and beauty of the flowers; it also presents less space for the insects to deposite their eggs, and if the cuttings are burned, destroys many already laid. Climbing roses must only be thinned out from the wiry, straggling branches, and shortened a little, nailing or tying them neatly to the trellis which forms their support.

To prolong the bloom, pick off every flower with the fruit attached as soon as it has passed its perfection; this enables the other buds to some forward, and prevents their turning yellow and perishing.

The insects which attack the rose are chiefly a little brown grub, which eats into the buds — this can only be removed by picking; and the aphis, or green fly — a syringe and tobacco water will destroy these, and even plain water, if frequently applied, will cause such disturbance among them as to prevent much mischief.

The rose can hardly be placed anywhere without being ornamental; but having myself planted them as a hedge crowning a semicircular bank which terminated a lawn, and kept them cut low, so that the numerous blossoms reclined on the well-mown grass, I cannot but recommend this style. It may be also put in practice to form edgings round oval or circular beds of flowers or grass plots. A thick hedge of well-mingled sorts is always beautiful; and the effect may be prolonged by the old method of rubbing off the buds of every other plant as soon as they appear; later shoots will then be formed, which will only flower when their neighbors have finished. A hedge of this description on the grass banks surrounding most of the houses in the country, would have a very delightful appearance. J. E. T.

ON THE CULTIVATION OF THE DAHLIA.

So much has been written upon the cultivation of this magnificent flower, that it may be thought unnecessary to add anything more; but having for three years past been successful in producing a splendid bloom for more than two months of the season, and wishing its

cultivation may become more extensive, I am desirous of communicating to the public my experience in this branch of floriculture.

We are too apt in this country to follow the directions given in English books, without considering the great difference of climate. Following these directions myself, I failed in their cultivation, and was upon the point of giving it up in despair; the few and imperfect flowers produced did not seem to pay the trouble and expense.

Instead of planting without manure, as I did formerly, I plant in a good rich soil, and add unfermented manure. The most of my dahlias have been planted on the same spot, for three years past — on each side of a broad avenue: thus arranged, with the various colors properly mingled, I think they produce the finest effect, and are more easily viewed than in any other mode of arrangement. If planted in masses, with the lowest growing set in front, with a shrubbery in the back ground, the effect is pleasing; in this way my less choice varieties were planted.

About the middle of May I get my ground in readiness, by ploughing or digging, it having been well manured the year before. On each side of the avenue, I dig a row of holes, four feet from each other, about one foot deep; into which are thrown two shovel-fulls of coarse manure from the cow-yard and horse-stable, mixed together; the sides of the holes are dug down and incorporated with the manure. A hole is then made in the centre of each with a bar, and a substantial chesnut or pine stake five feet long put firmly down for the future support of the plant.

I then take light pine poles, twelve feet long, and tie horizontally from stake to stake near their tops with rope yarns, and others half way to the ground, in same manner. Thus I have a sort of trellis in readiness to confine my dahlias as they increase in size, and secure them from damage by wind. If attention is given to have the stakes range with the avenue, whether straight or winding, and the poles tied on with some regularity, their appearance is not unpleasant even before covered with foliage. The holes are filled up, and the ground raked over, and all is ready for planting.

If the tubers are planted without starting in a frame, they may be put out any time from the middle of May to the first of July. Some planted at the last date this season, produced an abundance of flowers. The tubers should be covered about three inches deep; only one sprout should be permitted to grow.

The best way is to forward the plants in pots in a moderate hot-bed,

either from divisions of the root, or raised from cuttings. The last way I prefer, as they come in flower full as early, and produce finer flowers. The plants may be turned out of the pots any time in the month of June, or the beginning of July. If dry weather succeeds, as it did last season, I give plenty of water on the evening of each day. As the plants advance in height, the lateral branches are all pinched off with the exception of a few, which are left to be trained fan-fashion to the trellis. The stems must be securely fastened from time to time, or they will be liable to be broken off by the wind.

After the bloom commences, except tying very little care is necessary; the ground should be kept clean. I think the trampling of the ground occasioned by the tying, pruning and examination is beneficial, as the moisture is thereby retained. My dahlias began to show flower this year about the first of July, but not many of them were fine and perfect the whole month. During the month of August, nearly all in my collection were in full flower, and for quantity and quality I think I may safely say were unequalled. They received a check the 16th of September by a hard frost, from which they did not recover; many fine flowers, however, opened after this, but were finally destroyed about the 1st of October.

I must confess that I have not succeeded to my wish in blooming some of the striped varieties, and should like information from those who have had better success. *Picta formosissima* did not produce one in twenty that could be called regularly striped flowers. I had a few that were very much admired, distinctly striped with orange and scarlet.

Levick's Commander in Chief produced only one fine striped out of at least thirty very dark, almost black flowers; this was extremely beautiful, being regularly striped with a brilliant crimson.

Most of the edged, spotted and shaded varieties succeeded well. The self-colored I think most desirable, with few exceptions, for small collections.

About the last of October or the first of November, I take up the roots. It is important to have them secured before the ground is frozen in any degree; if there is a prospect of severe weather before that time, the earth should be thrown up round the stems to protect them. As fast as they are dug I convey them to a dry, open cellar, and place them upon boards; in this situation they remain about three weeks, when they will be sufficiently dry; they are then packed in boxes with dry tan, and kept where they will be secure from frost.

In this way I have preserved the roots in good order for eight months.

The dahlias upon the avenue were in a very airy place, fully exposed to the sun; the soil a brown loam. Some planted on the same ground, without manure and pruning, produced but few flowers in connexion with the others.

Among the numerous varieties of beautiful dahlias which now enrich our gardens, I am sensible it will be very difficult to make selections of small assortments that would meet the fancy of all, especially of those who have had the gratification to select for themselves, or view with their own eyes, the splendid displays which have been exhibited the past season. Knowing that many who live remote from the head quarters of Flora, are desirous of embellishing their grounds with the king of flowers, and who are at a loss to select with a catalogue in their hands, from not having seen them in bloom, I shall, for their accommodation, make a few selections of such as have come under my own observation and care. From my collection I have thrown out all the late flowers, and all indifferent ones, and shall offer for sale none but the very best, except at greatly reduced prices. The following four assortments are equally fine, and embrace as great variety as possible in so small number. A florist would hardly be satisfied with short of one hundred varieties. So various are the shades, colors, shapes, &c., that even this number would hardly give a good assortment; but a dozen good ones will answer to make a commencement with.

No. I.

	Ft. high.
Springfield Rival, dark rosy crimson, with fine cupped petals, globular shaped,	5 to 6.
Widnall's Flora, quilled pink, fine,	3 to 5.
Tyso's Matilda, bright lilac, fine shape, free flower,	3
Lovejoy's Earl Grey, orange, or rather orange scarlet, large,	5 to 6.
Widnall's Jason, bright gold color,	5
Widnall's Granta, dark claret, with fine cupped petals, and excellent shape,	4 to 5.
Countess of Liverpool, superb scarlet, extra fine,	7 to 9.
Queen of Dahlias, beautiful white, with purplish lilac edge,	3 to 4.
Richardson's Alicia, white spotted with purple, extra fine in size and shape,	3 to 4.
Queen of the Whites, snow white. There are two varieties under this name — one pure, the other a little touched with blush; both are fine,	5 to 6.

	Ft. high.
Grand Duke of Tuscany, finest black,	3 to 4.
Lord Liverpool, fine dark, pure, extra fine,	5 to 6.

No. II.

Village Maid, white with pink edge, superb,	3 to 4.
Widnall's Duchess of Bedford, brilliant scarlet, extra fine,	4 to 5.
Widnall's Plutus, rosy purple,	4 to 5.
Picta, orange and scarlet finely shaded,	4 to 5.
Lady Granville, dove color, extra fine,	5
King of the Whites, delicate paper white,	4 to 5.
Sulphurea excelsa, exquisite yellow,	4 to 5.
Levick's Incomparable, scarlet, petals tipped with white. This would be esteemed one of the very finest, if the flowers were all spotted.	
Bella Donna, ruby purple and white,	4 to 6.
Widnall's Aurora, bright orange scarlet,	4 to 5.
Groombridge's Matchless, superb purple.	5 to 6.

No. III.

Transcendentia, white delicately blushed with lilac, fine,	5 to 6.
Rose d'Amour, rose tipped with white, extra fine,	5 to 6.
Queen of Belgium, white with purple spots,	5 to 6.
King of the Yellows, fine light yellow,	4 to 5.
Barrett's Susanna, fine purple, with cupped petals,	4 to 6.
Agrippina, mottled white,	3 to 4.
Levick's Commander in Chief, beautiful crimson with black stripe,	6 to 7.
Picta Formosissima, bright orange with beautiful scarlet stripe. What detracts very much from the two last named, is the irregularity and uncertainty of the stripes,	5 to 6.
Widnall's Chancellor, dark scarlet, fine shape,	4 to 5.
Negro boy, fine black,	4 to 5.
Lilacia, delicate lilac,	4 to 5.
Colville's Perfecta, dark shaded purple,	4 to 6.
Magnet, fine ruby purple,	4 to 5.

These two last are old varieties, but will be retained by me in preference to many new ones.

No. IV.

	Ft. high.
Emperor of the Whites, large, pure white,	4 to 5.
Queen of the Yellows, or La Brilliante, either variety, fine yellow,	5 to 6.
Lord John Russell, scarlet ball, extra fine,	4 to 5.
Widnall's Salamander, very large, scarlet,	4 to 5.
Brown's Ophelia, very fine, white shaded with rose,	3 to 4.
Paroquet, beautifully striped yellow and lilac,	3 to 4.
Prince of Orange, fine orange,	5 to 6.
Wells's Royal Lilac, very large, lilac,	4 to 5.
Rosea alba, fine rose,	5 to 6.
Dennisii, fine ruby, extra fine,	4 to 5.
Man of Kent, bright purple,	4 to 5.
Priestly's Enchantress, white and red beautifully mottled,	4 to 5.

I might go on to make farther selections from my own and the collections of others which I have examined the past season, but presume I have already enumerated enough to tire the patience of most readers. I shall give an extended list in the spring, with their price, &c.

Yours, &c.

JOSEPH BRECK.

BY THE EDITOR.

We recommend to attentive perusal the foregoing communication on the dahlia. The practical proof of its success may be remembered by those who witnessed the very fine display of these flowers at the Horticultural Society's exhibition this year, from the Lancaster garden, under the direction of our correspondent, Mr Joseph Breck.

We can confirm that part which relates to the importance of cow manure in the cultivation of them; some of the finest in the neighborhood of Boston having been grown in this method, although the subsoil was gravelly and porous. Many persons have with great reluctance given up growing this flower, being discouraged by repeated unavailing attempts; we trust this will no longer be the case, and that the successful perseverance of Mr Breck will animate them to resume their labors.

We feel great anxiety on this subject, and cannot omit this fair opportunity of assuring those who raise them for sale, that nothing can be more adverse to their own interests than making a secret of a successful method of cultivating this or any other flower, merely in

hopes of bearing away a prize from a rival competitor. The more easy it is made to grow them in splendour, the more demand there will be for the plant, and the remuneration greater to those who have them for sale. This system of secrets is a common failing amongst gardeners, and operates very much to their own disadvantage, for the public will purchase a beautiful plant once, but if it die for want of their knowing how to treat it, they become discouraged; on the other hand if they can keep it flourishing, they become interested not only in that, but by degrees in other plants, and much money formerly devoted by them to different gratifications, is diverted to purchases from the gardener and florist. It is also astonishing how this desire for flowers spreads, particularly among young persons of the female sex, who have generally a kind of innate taste for all that is elegant and beautiful in the floral world.

J. E. T.

FLOWERS IN BLOSSOM IN OCTOBER.

ONE of the chief uses of periodical works, is to record facts for the purpose of reference at a future time, when they may be of more use than we can at present surmise. For this purpose we have made a list of flowers in full bloom in the open air in our garden, this 29th of October, 1835, being the best proof we can afford of the mildness of the autumn and the beauty which, in favorable seasons, may be retained in the garden at so late a period of the year.

Eschscholtzia Californica, in perfection.

Convolvulus major and *minor*, the last in perfection.

China asters, many varieties, going off.

Chrysanthemum tricolor and *indica*, several varieties, just opened.

Indian pinks, great varieties, in perfection.

Dahlias, several varieties in perfection, including several seedlings from seed sown in the open ground in May.

Marvel of Peru, six varieties, in perfection.

Balsams, going off.

Salvia splendens, in great beauty bearing seed.

S. Prismatica, in perfection.

S. Angustifolia, in perfection.

Canna indica, red and yellow, second shew of bloom in perfection.

Commelina cælestis, in perfection.

- Talinum ciliatum*, in perfection every sunny day.
Anagallis indica, a few of its beautiful blue flowers.
Dracocephalum speciosum going off.
 Marygold, varieties in perfection.
Petunia nyctaginiflora, in perfection.
 Golden rods, going off.
Sevia Serrata, in perfection.
Reseda odorata, mignonette in great perfection.
 Sweet peas, some lingering stragglers still pretty.
Gladiolus natalensis, in beauty.
 Violas, heartsease in profusion, very gay.
Iberis odorata in perfection.
 Stock gilliflower, rose colored, very spicy odor, in perfection,
 new.
Verbena aubletia, in perfection.
Ximenesia enceloides, going off.
Coreopsis lanceolata, the last flowers, elegant, yet in beauty.
 Jacobea, several colors, hardly yet in perfection.
Galinsoga tribolata, in perfection. We have given this a bad character in our article in the preceding number, it is just to say that it increases in beauty as the autumn advances.
Nicotiana repanda, in perfection.
Browallia elata, blue and white, in perfection.
 Silene, several varieties, going off.
Orobus niger, going off.
Calceolaria pinnata, in perfection.
 Silver hawkweed, a few flowers.
Picridium tingitanum, a few flowers but perfect.
Hibiscus trionum, a few flowers small.
Centaurea sweet sultan, in beauty, C. Cyanus also.
Delphinium ajacis, the double branching larkspur, in great beauty,
 4 feet high, one plant with 30 branches of beautiful blue flowers.
Madia Splendens, in beauty.
Malope grandiflora and *trifida*, in perfection.
 Zinnia, varieties, going off.
 Poppy, picotee, second blooms, small but yet handsome.
Ammobium alatum, a few blooms left.
Zeranthemum annuum, yellow and white, in perfection, *lucidum*
 going off.
Oenothera several varieties, particularly *tetraptera*, in perfection.

Coronilla securidaca, in perfection.

Eutoca multiflora, just going off.

Lopezia coronata and *racemosa*, in great beauty.

Plectocephalus americanus, great American Thistle, in perfection.

Gilia Capitata, in perfection.

Lobelia gracilis, in perfection.

J. E. T.

ON ARTIFICIAL ROCK WORK.

THE pressure of articles in our last number occasioned the omission of the present, much against our will.

There are many plants with rather small flowers which possess exquisite colors and elegant forms, the charm of these is in a great measure lost by their being planted in the bed where the pitiless shower defaces their delicate tints with earthly splashes, or their distance from the eye causes their minute yet elegant characters to pass unnoticed; other plants run over the surface of the flower border to great distances, interfering with their neighbours, which would look much better hanging pendant from the crevice of a rock, or covering the sunny bank with their numerous blossoms.

Nature, who is always an interesting and instructive teacher, points out such facts plainly, by often exhibiting these her treasures inhabiting and flourishing in the cracks of her wild mountain scenery, making it as interesting on a near approach, as it is astonishing at a distance.

Near Boston there are several glens on a small scale where the naked rock is beautifully ornamented by the Columbine, the *Thalictrum*, (meadowrue) the violet, the fern and many other plants of great interest, they always appear to me more captivating in these their natural situations than when formally planted in the parterre.

In Europe few gardens are considered complete without their compartment of rock work; and even where the spot is of the smallest size, a little piece of this device is frequently seen, filling up and concealing an ugly corner; nay in the immediate vicinity of large towns where the kitchens occupy the places of the cellars in this country, the way down is sometimes metamorphosed into a rocky glen where *Polypodiums*, *Aspleniums* and other ferns flourish — one friend of mine near London has a place of this kind where there is a collection of

more than two hundred varieties of fern, many of them natives of this country, he writes to me — “This I have turned into a rocky glen, planted all over with every variety of fern I could collect, and there are above 200 of them, in the several interstices between one piece of rock work and another, all growing beautifully, and presenting a singular and interesting contrast to the other surrounding species of vegetation. I am quite sure that if any Horticulturist who has the least feeling for the beauty of form were to see it, he would not be long without taking the hint ; the effect surpasses much what I expected.”

The nurserymen in the vicinity of London drive a considerable trade in these rock plants, as they are called, and generally keep them in small pots in appropriate mould so that they may be purchased and transplanted at any time of the year ; so great indeed has been and I believe is still, the demand for them, that any one acquainted with the subject will know that the Alps, the Appenines, and every mountainous chain in the moderate climates has been ransacked for the purpose of adorning these faint imitations of nature’s stupendous piles.

The first and great care in erecting rock work is to see that it does not resemble a pile of loose stones, the next that it is not built in a regular form, such as the segment of a circle or a right line, as I have seen recommended in some works — then that the fragments of rock be of widely different sizes — for instance, a few small stones may fill a large interval between heavy masses, but there must neither be a mass of immense blocks together, nor a number of small ones piled on each other. It is by no means requisite that the whole rock work should constitute one mass ; on the contrary, more variety is produced by having it in separate masses, with passages occasionally narrow and ruggedly rising, so that it is necessary to climb over a slight impediment to make the circuit — some art is required in arranging the crevices so that the soil fit for each plant be not washed out by heavy rain, and the roots laid bare, the moss which grows on the surface of barren rocks is excellent for filling the lower part of these interstices, and in cases where plants that love a damp soil are cultivated, a garden pot with the hole stopped to hold water, and another with the plant placed in it may be easily concealed — where there is water which might be made to trickle over the rock work this aid is not required. Due attention must also be paid to the aspect. Some flowers only open in the sunshine, others are only half hardy, for these the south and sheltered side is appropriate ; ferns and many others

love the shade and will not support the parching rays of the sun, these may clothe the northern aspect.

I have already made the remark in a former communication that the clear and bright atmosphere of this section of the United States seems particularly adapted for collections of this nature ; for many delightful plants which luxuriate in the colder yet purer air which prevails in the higher regions of the Alps will not bear the humid and foggy atmosphere of England ; these are often introduced, but as often perish, here they would probably be permanent.

I may possibly have enlarged more on this subject than can be interesting here, where few of these artificial structures exist, yet as it is almost certain they will be shortly introduced, and if once introduced are sure to become common, especially as the materials both for their erection and ornament are in plenty, I may be pardoned for endeavoring, while opportunity is mine, to create an interest in a pursuit which has afforded me so much pleasure.

I conclude with a list of some of the most shewy and conspicuous plants for this purpose, beginning with those which are found in this immediate vicinity.

Houstonia cerulea, and *longifolia*, bluish and long leaved *Houstonia*. The former blossoms from middle of May to the middle of June in thick clusters, so that no stem can be seen, about 3 inches high, and may be gathered plentifully at Cambridge and Dedham, it is only annual ; the long leaved variety is perennial, an inch or two taller than the *cerulea*, but is a much rarer plant, I have only seen it near the granite quarry at Quincy it was then in blossom in August.

Mitchella repens, the checkerberry, this is almost too well known to require description, but its beautiful hairy white flowers which are extremely fragrant, and the bright scarlet fruit which succeed them would be greatly ornamental to rock work ; it abounds every where.

Epigea repens—Ground laurel. I do not know that this beautiful plant grows any where in this immediate vicinity, but it covers the rocks at Gloucester, Cape Ann, Plymouth, and a variety of other places, it is held in the highest estimation in Europe and well deserves it, some beautiful specimens were exhibited last May, at the Horticultural Society's room. The fruit is rarely seen, nor do I remember a description of it any where ; it is about the size of a small wood strawberry, white, pulpy, with divisions like those of an orange, the interstices filled with beautiful small black seeds, the flavor of this pulp is of a most delicate sweetness which only remains an instant on the

tongue, and appears as if formed for the food only of an ethereal humming bird.

Gualtheria procumbens, and *hispidula*—Partridge berry. These are more ornamental in their red berried fruit than in the flower — it is found every where in the neighborhood.

Dalibarda repens and *fragrarioides*, the white and yellow dalibarda, very lively little creeping plants, somewhat resembling the strawberry, but the flowers much more elegant from the delicacy of the stamens. Dr Bigelow says they are found in woods in Princeton and in Hanover, N. H. ; I have not been to these places, but found it plentifully creeping over rocks imbedded in moss in Maine, it flowers there in August, here rather earlier.

Hepatica triloba—Early anemone. This beautiful flower which appears before its leaves in April and May, is found plentifully at Mount Auburn in all its variety of colors, blue, white and pink ; it is indispensable in rock work.

Anemone thalictroides—Rue leaved anemone. *Nemorosa*—Wood anemone. The first, which is from 8 to 12 inches high, is found in plenty at Dedham, the other every where in woods, they are white and very ornamental.

Viola pedata and others. These are well known, and as they are early, are extremely desirable to satisfy the impatience of those amateurs who are constantly on the look out for signs of the approach of their season of enjoyment. Many other plants of this description abound near Boston, but I must pass on to notice those of other climates.

The first are almost the whole tribe of saxifrages, one of which, *vernalis*, though not sufficiently shewy for our purpose, is the earliest flower that blows near Boston. *Saxifraga granulata*, which may be purchased here, I recommend as most conspicuous.

The next are a tribe of thick leaved plants called *sedums* and *sempervivums* or house leek, amongst these the yellow stone crop and the *sedum ternatum*, both ornamental, are well known here.

The family of *Campanula* afford a liberal subscription towards our design. *C. pumila*, white and blue, *erinus* and many others adorn the rocky places bordering the Mediteranean.

Several creeping *geraniums* which blossom throughout the summer are appropriate plants. *G. sanguineum*, *lancastricense* and *Wallichianum* are to be had at the Nurseries in this country.

Mountain pink, *Dianthus montanus*, with several others of this tribe are extremely pretty.

Verbena melindres, *aubletia*, and *vernosa*, well known here, particularly the former, eclipsing every other flower by its brilliancy, this, however, requires protection in the house during the winter.

Lysimachia nummularia—Money Wort. This requires a damp soil to flourish, but must be kept in subjection or it will overrun all the rest.

Lobelia bicolor and *erinoides*, with several others of this tribe, small bright blue flowers, very lively.

Tiarella cordifolia, a pretty plant with spikes of elegant small greenish white flowers, a native of the older woods in this State.

Duchesnia indica, formerly called *Fragaria indica*, or Chinese Strawberry. The bright red strawberry-like fruit of this is very ornamental to the rock in autumn.

Cerastium tomentosum, mouseeared chickweed, has a small white woolly beautiful leaf, and for this tribe a large white flower.

I have given a list of enough for a beginner, and shall be happy to continue it if these structures at all increase. J. E. T.

FOSSIL PLANTS.

IN the fossil impressions of plants discovered in the shale which indicates the vicinity of coal, it has been observed that with few exceptions the coniferous (fir) tribe, the Cycadææ (cycas and zamia) and the ferns were the only plants thus found, and these latter never with their seeds. From this circumstance, conclusions were rather hastily drawn respecting antediluvian vegetation. Professor Lindley, in one of his last numbers of the Fossil Flora of Great Britain, details a simple experiment, which appears to give a different idea on this subject. He procured an iron tank filled with water, in which he placed one hundred and seventyseven varieties of plants belonging to all the more remarkable natural orders, which remained untouched, except by filling up gently the water as it evaporated, for two years; on examination after this period, he found that the principal part of what remained undestroyed were the Coniferæ, the Cycadææ and the ferns, but the fructification or seeds of these last were decomposed and gone. The beds of coal are now pretty generally admitted to be masses of vegetable origin, probably forests acted upon and changed by long immersion in water, with perhaps pressure and some degree of central heat. The result of this experiment would therefore show that no

just conclusions as to the variety of an antediluvian flora can be formed from the circumstance of such plants alone being found. Mr Lindley observes that all the dicotyledons were completely decomposed; that monocotyledons bear it better, but of these, grasses and sedges are destroyed, as are also Equisetums; this appears to negative the idea of several fossil impressions being gigantic Equisetums.

We insert this, as such vegetable impressions have been found at Mansfield, near Boston, where veins of coal have been just discovered, and the active researches now making after this valuable mineral in different parts of the United States, give an interest to everything relating to the indications of coal, or coal measures, as they are termed in England.

J. E. T.

EXTRACTS FROM FOREIGN PUBLICATIONS.

HAVING received in various publications details of the proceedings of the recent annual meeting of the British Association for the advancement of Science, held at Dublin, we lay before our readers all the information there elicited on Horticulture and Botany.

“A communication was read from Mr. Hamilton, of Mexico, offering his services to the British Association, in forwarding seeds and plants, and describing some new plants of that country, one a species of *solanum*. The *amollis* was stated to be an *agave*.

“Dr. Coulter doubted this, and took occasion to inform the meeting of a plant, a species of *veratrum*, not the *veratrum sebadellia* of the shops, a portion of which was taken medicinally by a person laboring under dyspepsia, so that he could make use of no food, and having at the time to ride thirty miles a day. After the second dose his appetite returned. Dr. Coulter only saw the root, and was thus enabled to pronounce the plant not to be the *veratrum sebadellia*. It is called by the natives the Indian’s root.

“*Tuesday*.—Mr Mackay submitted several specimens of bog-timber, some Scotch fir, found eighteen feet under the surface; also some specimens, with marks of their being charred when they fell. He also detailed the uses made of bog-timbers in Ireland.—Col. Sykes remarked, that he had never seen any so much charred as the Irish specimens.”

“The business of the section, this day, terminated in a paper by

Mr Smith, of Jordanhill, on a fossil forest near Glasgow. It is seen at the aqueduct over the Kelvine River, and consists of a number of trees standing in an upright position, and throwing out roots in all directions, just as if they had grown on the spot. They rest on nearly horizontal strata of sandstone, at the bottom of a quarry, and terminate upwards at the height of a few feet, as if cut right across. The trees are all dicotyledonous, and some of them are so near one another, that it is difficult to conceive how they grew. The quarry is covered by diluvium, many rolled fragments of which must have come from the N. W., thus confirming what was shown at a former meeting by Mr Byrce, respecting the diluvial currents of the north of Ireland.

“Prof. Sedgwick explained, that as all the trees were most probably of the fir tribe, they may have been nearly bare of branches, and have grown close together. Mr J. S. Monteith observed, that the celebrated Craigleith fossil tree lay across the layers of freestone, and was not vertical as these trees.”

“*Wednesday*.—Mr Nicol read a paper on the structure of the horizontal branches of the natural family of Coniferæ.

“Some observations of a highly interesting character were made by Professor Daubeny, on the circumstances affecting the exhalation of moisture from the leaves of plants—the influence of light and heat together, and of heat without light. A very interesting discussion arose out of this subject.

“Professor Allman submitted a plan for the arrangement of plants according to their natural affinities.”

LONDON'S GARDENER'S MAGAZINE for Sept. 1835 :

On the Management of Grass Lawns. By Mr T. Rutger. The beauty of our English lawns is proverbial, as they far exceed in the richness and perpetuity of their verdure those on the Continent: this is to be attributed chiefly to our climate, assisted, perhaps, in many instances, by the richness and depth of the soil. The beauty and perfection of a lawn consists in the evenness of its surface, whether on the level or slope; the absence of worm casts, and of every kind of obnoxious plants, such as the daisy, plantain, &c., and also of the coarse grasses; such as the *Hólcus lanátus*, *Dáctylis glomeràta*, and others that might be named, with the exclusion likewise of moss. A perpetual verdure is also indispensable to the completion of the whole. To preserve a lawn in high keeping, considerable labor and attention are necessary, particularly during the summer months; the process of

which, although simple, if it is not followed up, will soon discover neglect. The common routine of rolling and mowing once in a week or ten days may be sufficiently understood; and this alone, in a tolerably moist season, may be sufficient to effect a neat appearance; but, in season, of drought, frequent waterings should also be resorted to, and particularly upon thin and gravelly soils; and this should be commenced on the very first appearance of any change in the color of the grass. Were it possible to prognosticate the exact time when a season of drought should commence, I should advise the scythe to be laid by in time, so that the grass might nearly want cutting when the dry weather began, as by this means the ground would be somewhat shaded, and the watering have a greater effect towards preserving the verdure. It may also be observed, that, during the dry weather, the daisy rake, if frequently used, will be in many cases sufficient to remove every thing that may appear unpleasant to the eye.

But it must not be considered that merely rolling, mowing, sweeping, raking, and watering are all that is necessary to preserve the beauty of a lawn; it is necessary that the soil should also be kept in good condition, or, as the term expresses, and which is often used, "in good heart:" otherwise it will, by perpetual cutting, soon become impoverished; and a mossy surface will shortly make its appearance. I am aware that there are some who prefer this; but I conceive the perfection of a lawn does not consist in its being composed of a bed of moss, however pleasant it may be to walk upon; the beautiful verdure of grass is far more attractive, and, when in good order, is in far better keeping with the walks and shrubbery adjoining; but, to secure this, manure is occasionally necessary; and, the richer it is, the less quantity of it, when applied, will be wanted, and the finer it is in its component parts the better, so that by a few strokes with the broom it may disappear. I should recommend this operation to take place late in the autumn, when the scythe has been laid by, and prior to it that the garden rake be used in scratching over the surface, so as to admit the manure the more readily to incorporate itself with the soil. In about a fortnight after the manure has been applied, the roller may be employed to restore all to its former level. It may not be amiss to observe, that the manure used should be as free from the seeds of weeds as possible. I know of no manure more efficacious, in proportion to the quantity used, nor that will impart a greater degree of energy to the soil, than soot, which, being perfectly free from seeds of any kind, may be applied with great advantage when

used with caution, and it will produce a most beautiful verdure. Soot is also an antidote against the worms, and will in a great measure supersede the necessity of using lime water.

Munich, May 30, 1835.—Our new temple in the king's garden at Munich is nearly finished, and will form one of the finest objects in the garden. The temple is of white sandstone, and is designed and erected by the king's architect, Von Klienze, in the purest Grecian style. It is round, and is supported by ten Ionic pillars. Its decorations, according to the manner of the Greek temples, will consist of paintings in encaustic with gilding; from which, and its elevated situation, it will present, in sunshine, a truly southerly character. The temple will also serve as a monument for the two princes who established this garden; viz. Carl Theodor, elector, and Maximilian, first king of Bavaria. Monuments are already erected to the memory of the two persons who laid out the garden; viz. Count Rumford and F. L. von Sckell, landscape-gardener.

The hill on which the temple stands will also soon be finished. I have already, this spring, laid out some of the plantations. I have accomplished the formation of this hill with the greatest difficulty; and, although I had previously made several artificial hills in the king's garden at Nymohenburg (and I may flatter myself, not without credit,) yet, from this situation being flat by nature, all the difficulties which usually present themselves seemed here united. Nothing which comes under the head of landscape-gardening seems to me so difficult as to give a natural appearance, and a suitable character, to the formation of a hill; and it is a good field for the talents of the designer. As to the formation of valleys, rockwork, rivers, brooks, grottoes, and springs, even the arrangement of plantations, they are, in my opinion, not to be compared with the difficulty of forming a hill.

Elæocárpus cyàneus.—A beautiful specimen of this Australian shrub was exhibited by Mrs Maryatt, at the Horticultural Society's meeting, in Regent Street, on July 7. It was a plant, in a pot, not above 2 1-2 ft. high, but it had several bunches of its beautiful bell-shaped white flowers, with petals fringed at the edges, as if they had been cut out of paper with a pair of scissors; and it had a bunch of ripe fruit. The length and general appearance of the spike are something like those of *Prùnus Pádus*, the Bird Cherry, and the leaves, also, and general appearance of the plant, have something of the aspect of that tree. The berries were of a shining dark bottle blue, being about the same size as those of *Prùnus Pádus* var. *bracteolàta*, with the spike

loose and hanging down, as on that tree. *Elæocárpus cyàneus* is by no means new, having been introduced from New Holland in 1803; nor is it either scarce or tender; for we have had a plant for five winters, to illustrate the order *Elæocárpeæ*, which is placed against a wall, in our Representative System of Green-house Plants, which, for the last two winters, has only been protected by glass, without artificial heat. Our plant is so crowded and shaded, like almost everything else in our small garden, that it has not attained the height of a foot. Like, we dare say, many others who possess this *Elæocárpus*, we had not the least idea of what it was capable of becoming when treated with ordinary care. Mrs Maryatt has, however, shown what a beautiful plant it is, when it is allowed an opportunity of flowering; and we do not doubt that it will soon become a great favorite. — *Cond.*

Alstræmèria acutifòlia is perfectly hardy. — Its roots endure the winter here remarkably well when planted in a light sandy soil, and about 6 in. under the surface. On Christmas-day last it was beautifully in blossom; and, although we have had some considerable frosts this winter, they have made no impression whatever on the flowers. — *T. M. Lindsey. High Clere Gardens, June 1, 1835.*

Faulkner's New Scarlet Pine. — A remarkably productive and fine flavored strawberry has been raised by Mr Faulkner, of the Flora Tea Gardens, Battersea Fields. It is of a particularly fine clear color, high flavor, and in productiveness, judging from the produce of a single plant which was brought to us, we should say that it excels all others. We are confirmed in this opinion of Mr Faulkner's scarlet by no ordinary judge, Mr Charlwood, who, indeed, first directed our attention to it. We hope the public will, at all events, give it a trial. — *Cond.*

The Shrivelling of Grapes, &c. (X. 18.) — The other day, in looking over some former numbers of your Magazine, I met with a paper written by Scientiæ, &c. (X. 18.) a writer I admire for his respectful and consistent mode of arguing. He there alludes to the shrivelling of the grape; and I, having written a paper on it in the same volume (p. 137.) in which you omitted to insert what I think the most important matter, am induced to make this second attempt to state what I consider to be the general cause of the grape's shrivelling. In the paper alluded to, in X. 137., you omitted to state clearly, that I considered it was from the footstalk of the berry not being grown sufficiently firm and hard, which I believe is the only cause. If the grape is grown in a humid atmosphere, it elongates the footstalk, and

causes it to be of a slender, thin, delicate texture ; and, in case of a sudden change, even for a short time, the footstalk is easily affected. I think, almost invariably, if the berries which are shrivelled be examined, they will be found to be of a very slender delicate texture, and with a black speck on the footstalk. When this injury takes place, as I believe, from the delicacy of the forestalk, the sap ceases to circulate in the manner required, I think this disease may be remedied by keeping the early forced grapes with less humidity in the house than some use when the crop is young, which helps to elongate the footstalk. In later grapes, if there were more air admitted, or artificial heat kept up in cold damp weather, either would remedy the disease ; but, as I stated in my former paper, give air and artificial heat at the same time. As I am making this second attempt to impress on the mind of the reader that the cause is really in the footstalk, I can and will advance a few things to make it more evident. I was asked, this season, by a gardener, what I would say to a vinery being left a little open all night at top ; my reply was, I had not tried it, but I would not hesitate in saying it was more likely to do good than harm. He said that there were the finest grapes in a house so treated that he had seen all the season. I was asking a gardener, about Christmas, how his grapes had done this year ; his reply was, "Very well ; I adopted your plan (except one light, which I could not move), giving plenty of air. The grapes under the light which I could not move, were not so good as the others." In a house I had this disease take the crop, with the exception of a vine at the end where the steam-pipe entered, producing a great and drying heat ; and there was a door, with a ventilator over it, which all aided to keep off the disease. This vine alone was always free from it : this speaks for itself. Perhaps many may think I am too sanguine on this subject ; but should I be right in my opinion, and in the means of producing a remedy, I shall be vain enough to think I have done some real good. Should any person really find the correctness of it, I hope they will do me the favor to acknowledge it in your Magazine, which will be attended with some good ; and should it be fairly proved my idea is wrong, I invite the same insertion from those who may have proved it to be so : but let them give it more than one trial, and fair ones ; for I have no desire to mislead. I know it is apt to be too much the case that imperfect trials are made, and often but one, which I never feel satisfied with ; for unknown accidents often interfered in one trial, which might not in the second.—*J. D. Parks. Dartford Nursery, May 20, 1835.*

Red Laburnum. This new Laburnum, considering the short time it has been introduced, has got into many of our shrubberies and pleasure grounds to which it is a great additional ornament, especially when mixed with the rich clusters of the purple and white Lilac, its graceful ringlets are blended with those of the yellow so long held in estimation.

Method of rearing young oaks in glasses. Pierce the shell of the acorn about the centre of the side with a fine brass wire, suspend it horizontally in a glass about half full of water, and keep it in a warm place, such as a low mantel shelf. After the acorn has begun to germinate, change the situation to one not quite so warm, and where there is more light; the acorn must not touch the water, but be suspended just over it. The evaporation will keep it sufficiently moist. A Hyacinth glass is as good as anything, it should be covered with leather or with a piece of lead with a hole in it. A good effect is produced by acting on two acorns in the same glass.

BRITISH FLOWER GARDEN, for September, contains figures and description of

Pavia carnea, flesh colored American Horse Chesnut — Heptandria monogynia and Hippocastaneæ. This is a beautiful bushy tree 10 to 20 feet high, a just miniature of the large horse chesnut with brilliant flesh colored spikes of flowers, a native of the South western State.

Orobus hirsutus, hairy bitter vetch — Diadelphia decandria and Leguminosæ. A very lively bright blue perennial from the Levant; hardy and of easy culture.

Linum flavum, yellow flax — Pentandria pentagynia and Lineæ. This is a very old favorite green house plant, with numerous large, brilliant yellow flowers. In perfection early in the Spring. Large quantities are annually sold in England by Nurserymen; it is very easily propagated by cuttings, which scarcely ever fail taking root. We recommend this for introduction.

Symphytum officinale var. Bohemicum, Bohemian comfrey — Pentandria monogynia and Boragineæ. This has been noticed in a former number.

THE BOTANICAL REGISTER, for September, by Dr. John Lindley contains

Gesnera faucialis, wide mouthed Gesnera — Didynamia angiospermia and Gesnereæ. A large scarlet ringent flower from the Brazils;

it is the largest of its family, and must make a fine show in the Greenhouse.

Erythronium grandiflorum, large American dogstooth Violet — Hexandria monogynia and Lilaicææ. Having flowered this plant for three years in my own garden and carefully observed its habits, and having annually visited the places in which it abounds, I have no doubt that the flower here figured and described is identical with that described by Dr Bigelow as *E. Americanum* — and that it is not *E. grandiflorum*. Mr Douglas, who discovered *E. grandiflorum*, says it has linear lanceolate leaves, while these are broad and singularly incurved at the top with a thick callous knob, — this and the character of the segments of the flower bending back almost to their base, on which latter, the editor of the London work relies as distinguishing it from all other American species, belong certainly to that described by Dr Bigelow. In the middle of the day, particularly during sunshine, they bend thus back, and close again in the evening. When the leaves first emerge from the ground, they are of a light green, spotted beautifully with reddish brown, these spots vanish as the season advances, and they finally become of one color — I have had flowers larger than those in the colored figure. The plant grows plentifully near Cambridge and in Roxbury, but is, as stated in the Botanical Register, an extremely rare plant in England, only a single bulb having been received eight or nine years ago from North West America at the Horticultural Society, London; it has not seeded there, here it seeds freely.

If there is any difference in the above two plants it is only in the stigma being three lobed in one and three parted in the other, but I have seen flowers in which the lobes are pretty deeply divided.

The Register mentions that Mr Douglas sent from the same country another species of *Erythronium* far more beautiful than this, which is most remarkable for having *an irregularly branched scape*, he has named it *E. giganteum*.

Oncidium pulchellum, pretty *Oncidium* — Gynandria monogynia and Orchidea, a beautiful species found in several parts of the West Indies, and probably mistaken for *O. variegatum* till Dr Hooker distinguished it. When in flower its panicle is so loaded with white blossoms tinged with pink and yellow, as to be weighed down with their profusion.

Oncidium Lemonianum, Sir C. Lemon's *Oncidium* — Gynandria monogynia and orchideææ. This curious little Epiphyte was amongst a collection imported from Havana last March by Capt. Sutton, and

by him presented to Sir C. Lemon in whose garden it flowered in May. It appears to us to be totally different from any species hitherto noticed and readily distinguished by its peculiar foliage. The scape is very elegant, the flowers which are few in number are yellow with small red spots.

We notice this tribe at present for the purpose of informing our readers that several of these curious and truly beautiful plants, have been imported in a perfectly healthy state this autumn from Europe, by a gentleman of Boston who possesses every requisite for the proper cultivation of them, including both zeal and taste; we may therefore expect next season to see them exhibited at the Rooms of the Mass. Hort. Society. If this circumstance should increase the desire for this tribe, no part of Europe possesses anything like the facilities of obtaining them from their native spots, which are offered to the inhabitants of the United States, by their proximity and almost daily intercourse with the West Indies, as well as by their regular trade with the Brazils and South America.

Azara dentata, toothed Azara, named after J. N. Azara, a Spanish gentleman who patronized science.

Polyandria monogynia and Bixineæ, a family only remarkable for containing *Bixa orellana*, which affords the dye called Anotta.

This specimen of the tribe has inconspicuous flowers, but the leaves are remarkably glossy and deep bright green, not losing them in the winter, as it is a native of Chile, near Valparaiso, it must have a place in the Greenhouse.

Kennedya Marryattæ, Mrs Marryatt's Kennedya — Diadelphia decandria and Leguminosæ. A beautiful greenhouse climber, obtained from Swan River, the seeds having been sent home by Sir Jas. Stirling. The first specimens were communicated by Mrs Marryatt, others were afterwards received from the garden of Mr Robert Mangles. It flowers abundantly from April to July, producing a striking appearance with its numerous scarlet blossoms. As it is easily propagated by cuttings it will soon become a common plant.

The American lady whose name this plant bears, and who is, we believe, a native of one of the New England States, has attained a very enviable distinction among the horticulturists of Great Britain, and is a happy illustration of the well known persevering and enterprising character of her country.

Arctostaphylos tomentosa, downy Bearberry — Decandria monogynia and Ericææ. A curious and very rare, hardy evergreen shrub,

a native of rocky places on the west side of North America from Puget's Sound in the north, to California and the Mexican mountains in the South.

One of this tribe of a very humble growth, the *Arbutus uva ursi*, or Bearberry, grows plentifully on the summit of the Blue hills, Milton.

Calotropis procera, tall Calotropis — Pentandria digynia and asclepiadeæ. This is a singular plant of some beauty raised in the garden of Sir C. Lemon, at Carlew, from seeds brought from Porto Praya, called by the natives *Calmady*. The flowers are star shaped like the Stapelia; which belongs to the same tribe; outwardly they are of a pale silvery color, inwardly of a deep purplish red, becoming paler at the points, and spotted towards the centre; they are produced in succession for several weeks; in the shade or when the plant is in a room, they are scentless, but in the sunshine or in a warm atmosphere highly fragrant.

J. E. T.

[For the Horticultural Register.]

SILK CULTURE IN INDIA.

Roxbury, November 19, 1835.

MY DEAR SIR,—Having recently been reading Milburn's Oriental Commerce, I was much interested in the account he has given of the silk culture in India: and as it contains some valuable information, which I do not recollect to have seen in any other work, on a branch of rural industry, which has claimed so much of your attention, and is becoming so important to this country, I enclose several extracts for publication.

The mode in which the mulberry plantations are managed, is novel, and well worthy of experiment; for if it will not enable us to obtain, as is there done, six crops of silk in a year, it is possible such advantages may be derived, as to induce its adoption, — especially in the Southern States.

The two species of silk-worms, which are described as peculiar to Hindostan, might be a valuable acquisition; especially that of Arrindy, as the Palma Christi, on which it feeds, flourishes throughout the United States.

The descriptions of the various kinds of silk produced in Bengal, and the mode of ascertaining their qualities, may be found useful to

those who have established manufactories in this country, and as yet rely on the raw silk of India for their looms.

With great esteem, your most obedient servant,

H. A. S. DEARBORN.

EXTRACTS.

Silk Worm. — “ In Bengal, the largest and best cocoons are preserved for the grain, and preserved in bags suspended to the roof of the hut of the peasant. When the insect is ready to burst its prison, a few balls are placed in a large basket on one shelf of a frame, provided for the nurture of the worm. The frame in common use, consists of sixteen shelves, placed in a shed upon vessels filled with water, by way of precaution against ants. After the moths quit their covering, attendance is required to remove the males as soon as their functions have been performed, and the females, when they have produced their eggs. The basket is carefully covered with a cloth, and in a fortnight the worm quits the egg. They are first fed with mulberry leaves, chopped very fine; as they advance in their growth, they are dispersed into more baskets, on the several shelves of the frame, and are supplied with leaves, cut into larger pieces, and latterly with whole leaves, until the period when the insect quits the food. As soon as it recommences eating, branches of mulberry trees are thrown on with the leaves upon them, and the insects eat with eagerness, and soon fill the baskets on the whole number of shelves; they arrive at their full size in a little more than a month from their birth, and changing their skins for the last time, are disposed to begin their cones. They are now removed to baskets, divided into spiral compartments, where they spin their webs, and cover themselves with silk. When the cocoon is completed, a few are set apart for propagation, and the rest are exposed to the heat of the sun, for the purpose of killing the chrysalis.”

“ The peasants sell the cocoons to the filatures, or winding houses, most of whom are in the employ of the East India Company.”

Cultivation of the Mulberry Tree. — “ The following is the mode of propagating the mulberry tree. The waste land is opened with the spade in the month of April; good soil is brought and enough is thrown on to raise it one cubit.* The ground is well broken with the plough, and levelled with an implement, which in form resembles

* The cubit of Bengal is eighteen inches.

a ladder, but which supplies the place of a harrow. The mulberry is planted in October; the slips are cut a span* long, thrown into a hole, covered from the sun, and are continually watered, until at the end of a fortnight they begin to vegetate. They are then transplanted into the fields, in holes, distant a span from each other, and nearly one span deep; four or five cuttings are placed obliquely, in each hole, which is then filled up, so as to cover the slips with a finger† of earth, closely pressed down. As soon as the plants appear, in December or January, the field is weeded. In April, when they are grown to the height of a cubit, they are topped, so as to leave a stem one hand‡ high; otherwise it is thought that the leaves would be bitter and hard, and that the worms would refuse them. A hand-hoeing is now given, and a fortnight afterward, the leaves are ready for use. The plant is then cut down a little above the root, and the silk worms are fed with the leaves; the field is weeded, if necessary, and another crop is obtained in June, and a third in July; but the leaves of this last crop only are gathered without cutting the stem, because that operation at so late a season, would, it is apprehended, injure the plant. The field is again weeded, and a fourth crop is ready in September; after gathering it, the ground is ploughed several times, and levelled with the implement above mentioned. In November, a hand-hoeing assists vegetation, and accelerates the best crop, which is cut in December; this is followed by a hand-hoeing and weeding, and is succeeded by another crop in March. The same course recommences, and the field, if sufficiently attended and cultivated, will continue to be productive during many years."

The Silk Worms of Tusseh and Arrindy. — "There are two other kinds of worms, which produce silk in Bengal, viz. the Tusseh and Arrindy worms; the former are found in such abundance, over many parts of Bengal, and the adjoining provinces, as to have afforded to the natives, from time immemorial, a considerable supply of a most durable, coarse, dark-colored silk, commonly called Tusseh silk, which is woven into a kind of cloth, called *Tusseh dooties*, much worn by Bramins, and other sects of Hindoos. This substance would, no doubt, be highly useful to the inhabitants of many parts of America, and the south of Europe, where cheap, light, cool, durable

* The span is nine inches.

† The finger is three fourths of an inch.

‡ The hand is three inches.

dress, such as this silk makes, is much wanted. This species cannot be domesticated."

"The Arrindy silkworm is peculiar to the interior parts of Bengal, in the districts of Dinagepore and Rangpore, where the natives rear and breed it, in a domestic state, as they do the silkworm. The food of this kind consists of the leaves of the common *Ricinus*, or *Palma Christi* plant, which the natives of these districts call Arrindy, and is abundantly reared over every part of India, on account of the oil obtained from the seed. Feeding these caterpillars with these leaves, will therefore make it doubly valuable, where they know how to spin and manufacture the silk. Their cocoons are remarkably soft, and white, or yellowish; and the filament so exceedingly delicate, as to render it impracticable to wind off the silk; it is therefore spun like cotton. The yarn thus manufactured, is wove into a coarse kind of white cloth, of a seemingly loose texture, but of incredible durability. Its uses are for clothing, for both men and women; and it will wear constantly ten, fifteen, or twenty years. The merchants, also, use it for packing fine cloths, silks and shawls. It must, however, be always washed in cold water; if put into boiling water, it makes it tear like old rotten cloth."

Kinds and Qualities of Raw Silk. — "Bengal raw silk, is divided into two classes; the reeled according to the old method, commonly called country wound, and that reeled according to the new, or Italian method. The places where the former is manufactured, are Comercolly, Jungypore, Rungpore, and Banleah; and those where the latter is prepared, are Comercolly, Malda, Radnagore, Jungypore, Rungpore, Banleah, Cassimbuzar and Gonatea.

The leading point which determines the value of Bengal raw silk, is cleanness, or, being free from knibs, or knots, known amongst the manufacturers, by the appellation of "*foul*;" evenness of thread is also most essential.

To judge if silk be clean, the best mode is to open the skein, and stand with your back to a window, so that you look down the extended silk in the same direction that the light falls; by this means you will easily perceive any *foulness* that exists, and a very little practice, will enable any person, by a mere *coup d'oeil*, to judge accurately upon this most essential quality of Bengal raw silk.

The different degrees of fineness and coarseness, are denoted by the letters A. B. C. Silk of 4—5 cocoons, is called A. No. 1; of 6—8 cocoons, A. No. 2; of 8—10 cocoons, B. No. 1; of 10—12

cocoons, B. No. 2; of 12—14 cocoons, and 16—18 cocoons, B. No. 3; of 18—20 cocoons, C. No. 1; of 20—22 cocoons, C. No. 2; and 22—24 cocoons, &c., C. No. 3. All filature silk, or that which is reeled in factories, is included within the above named letters and numbers; but silk which the natives reel by hand, is much coarser, and is marked by the letters A. B. C. D. E.

The Banleah filature silk, is inferior in fineness to Radnagore, or Cassimbazar filature silk of corresponding letters, and Comercolly filature silk exceeds these."

THE LANDSCAPE GARDENER, COMPRISING THE HISTORY AND PRINCIPLES OF TASTEFUL HORTICULTURE.

BY J. DENNIS, B. C. L., ETC.

LANDSCAPE gardening is now advanced to the rank of one of the fine arts, and placed next to landscape painting. It can only be treated of by those who can wield a classical pen. To infuse the principles of landscape painting into the practice and dispositions of the gardener, has long ago been tried by many eminent writers, but, as it would seem, with but partial success. Either the perceptions of the gardener were too obtuse, or the principles of the painter were inapplicable. On this point, different opinions are held; some affirming that the painter's ideas are in every case easily applied, while others assert the contrary. The learned author of the volume before us, embraces the affirmative side of the question, and has written the book to show how such things may be managed so as to produce the very effects which would be approved by the painter, and admired by every beholder. In this he has succeeded as well as any previous writer on the subject; and considering the *impossibility* of transferring fine taste by precepts, the rules which should guide the artist in forming garden scenery are laid down as explicitly and minutely as the subject admits of.

To every one wishing acquaintance with the history and changes of style in landscape gardening, the book will be most useful; and to those wishing to embellish their paternal acres no better directory can be had.

The author expatiates much on the great interest which may be created by a judicious intermixture of various tinted plants in forming

ornamental plantations of either trees or flowering shrubs, and shows the great advantage of so disposing them in order to produce striking contrasts, or harmonious associations.

Some of the author's descriptions are highly amusing. In looking at some lately improved places, he asserts that "It is invariably perceptible by a glance from the eye of taste, whether grounds have been laid out by a mere professional *engineer*, or under the superintendence of an artist or amateur of paintings; the direction of the lines supplying a leading test. The *engineer* commonly wages war with nature, summoning to the field a host of able-bodied mercenaries, armed with spades, crow-bars, or pick-axes, and, like potent pioneers, clearing the way of all impediments to the valorous champion's march, and with mighty arm rearing ramparts, covered ways, terraces, glacis, and multifarious invincible bulwarks. Such work of labor fills the gazing multitude with admiration and astonishment, the complacent conqueror of nature attaining the consummation of his triumphal achievements, the *spolia opima*, golden treasure.

"A man of taste, on the contrary, is content to become the fostering nurse of nature, merely controlling eccentric deviations and checking luxuriant wildness, attentively studying every prominent feature, and delineating every delicate lineament, merely substituting polish for coarseness, chasteness for rudeness. By such judicious treatment, correctness and elegance, beauty and sublimity are generated. But art can no more copy nature in planting, than in painting, without minutely and perseveringly scrutinising every interesting trait in her character, and every constituent principle contributing, whether by combination or contrast, to form her simple outline and complicated detail."

We have quoted the above to show the author's disapprobation of what he facetiously calls modern *engineering*, and also what he considers to be the sole duty of a landscape gardener. And we quite agree with the Rev. writer that, unless a man has seen natural scenery of every description, and is able to appreciate what is really beautiful, picturesque or sublime, and a practical judge of how far any of those characters are creatable about the place on which he may be employed, is altogether unfit for the profession of landscape gardening. A man may be able to design a very neat place by making smooth gravel walks serpentine through clumps of beautiful flowers and shrubs, levelling ground digging sunk fences, and giving the whole of the pleasure ground an air of comfort and high keeping; and yet be to-

tally ignorant of the principles of appropriate combination of the objects he has to arrange, as shown by painters in their works, or as recommended by the author before us.

The theory of colors as detailed by the writer is well worth studying; and he refers to two places as examples of ornamental gardening which deserve to be imitated as standards of (almost) perfection. These are Stourhead, and Luscombe, near Dawlish, the seat of Charles Hoare, Esq. The latter is said to be "the closest copy of natural scenery as yet produced by means of plantation, in any part of the kingdom." The author also speaks in high terms of the late alterations in St James's Park, which he attributes to Mr Aiton of Kew; but gives no opinion how far simply beautiful scenery is suitable for the front of a regal palace situate in the midst of a city. There are many other interesting notices in the book well worth the attention of improvers in general, and landscape gardeners in particular. — *Paxton's Horticultural Register*.

MISCELLANEOUS ARTICLES.

(For the Horticultural Register.)

GENTLEMEN — If you think this worth a place in your magazine, you will please insert it.

A COMPOSITION FOR FRUIT TREES. Take two quarts of soot, one quart of lime, one pint of soft soap, moistened with brine; this is a complete salve for wounded trees, or to be used when pruning. By adding more moisture, it makes an excellent wash for the branches and trunk.

Common hard soap is a very good thing for peach trees. Fill every hole and crevice in the bark of the tree with soap, and the dews and rains will keep the tree bathed. One pound of soap will be sufficient for twenty trees. It is a good remedy against insects, and will prove conducive to the health of the trees. I recommended hard soap to Dr Shurtleff and Mr Samuel Tewksbury, of Chelsea, two years ago.

Yours, respectfully, J. F. ROWE.

A PROFITABLE APPLICATION OF ATMOSPHERIC ELECTRICITY. Dr Derwin observes that in dry seasons, the erection of numerous metallic pints on the surface of the ground, but a few feet high, night time, contribute to precipitate the dew by facilitating the passage of elec-

tricity from the air into the earth; and that an erection of such points higher in the air, by means of wires wrapped round tall rods, like angle rods, or elevated on buildings, might frequently precipitate showers from the higher parts of the atmosphere, such points erected in gardens might promote a quicker vegetation of the plants in their vicinity, by supplying them more abundantly with electric ether.—*Phytologia*, xiii. 4.

ASPARAGUS. I do not like the asparagus which I meet with on the tables of city hotels. It is white, to be sure; but it is tough, ligneous and often bitter, and the most part of it not edible. This arises from an error in the cultivator, countenanced and encouraged by the buyer. It is owing to the asparagus bed being covered with a layer of earth or sand, that the grass may become blanched. The blanched part is what I dislike. If this dressing of earth is omitted, and the crowns suffered to remain near the surface, within the genial influence of the warm air, the growth is more rapid, and the grass all perfectly tender, edible and rich.—*Albany Cultivator*.

TO PREVENT HAIL STORMS. The London Courier states that, "A gentleman now on the continent writes that the whole country in the neighborhood of Lousanne, is undergoing a singular process called *paragreling*. The paragreles consist of poles of forty feet high, placed 500 feet from each other, to which conductors are attached. Great ravages are frequently occasioned to the vineyards by hail storms, and it is asserted that these conductors by depriving the hail clouds of their superabundant electricity, will cause their contents to descend either in snow or rain."

ELDERBERRY SYRUP. Take of the juice of elderberry one quart; boil it to one pint; strain and add two pounds double refined sugar, again place it over the fire; so soon as it shall have boiled, remove it from the fire; and when cold bottle it for use, taking care to have it well corked. Should a less quantity be used there will be danger of its becoming mouldy. As a gentle purgative this syrup is excellent medicine, of a very pleasant taste; is particularly serviceable to children, who are difficult about taking medicine. The dose for an adult is a wine glass full.

ELDER BUSHES. It was observed by the Rev. Jared Elliot, that "Elder bushes are stubborn and hard to subdue, yet I know by experience that mowing them five times a year will kill them."

POTATOES. It is stated in a French Journal, that potatoes may be preserved fresh, firm and well flavored for two years, by burying them in earth to the depth of three and an half feet.

GARDENER'S WORK FOR DECEMBER.

THE severity of the weather, during this month, generally, allow but little to be done in the garden in the Middle and Northern States. Should, however, the weather chance to continue mild, you may perform any of the operations directed to be done, but which were omitted in November. If the weather continues open, carry out and spread manure, and trench the ground, or lay it in ridges, to be mellowed by frost. Provide from the woods, &c. a sufficient quantity of bean poles and pea rods, which you may, after having trimmed and pointed them, deposit in one corner of your wood house, or in some other suitable place. Many people neglect to procure these implements in season, and are induced by the hurry of business, to permit their peas and pole beans to trail on the ground, which prevents their producing, particularly the tall growing sort, one third so many as if they were properly supported by poles and rods. The length of your pea rods should be in proportion to the sorts of peas for which you intend them. The Early Washington, or true May Pea, commonly grows to the height of two and an half feet, Early Double Blossomed, Frame, three feet; Early Frame, two and an half feet; Early Hotspur, three feet; Early Charleton, three feet; Dwarf Blue Imperial, two and a half feet; Tall Marrowfats, six feet, &c. The same kind of rods, which the tall growing peas require, will answer for the generality of running beans. The Lima bean, however, will need strong poles from eight to nine feet high.

Fruit Garden and Orchard. You may now carry dung, rich earth, or compost, and spread it on the borders on which are planted wall or espalier trees. This will protect the roots during winter, and in spring, being dug in, it will add to the growth and vigor of the trees; and the succeeding crops will derive much benefit from the operation. The same proceedings will much improve standard fruit trees of every sort.

Protect the Roots of Seedling Trees, &c. In the early part of this

month, if not done in November, you will please to lay long manure, or dung mixed with straw, over the roots of seedlings, or trees which were planted out last spring, or set out more recently, in order to prevent the frost from having a bad effect on the young and tender fibres, and the trees from being winter killed the first winter.

Attend to the preservation of your fruits; and for this purpose be careful to keep the frost out of the apartments in which you purpose to keep it. Examine and pick over, about once in ten days, all the fruit you have in barrels, on shelves, &c. Take off all moss from your fruit trees, and Mr M'Mahon directs, when such moss is gathered to carry it quite out of the garden to prevent its multiplying by seed, which it is very apt to do.

Prepare Labels for Plants. In hard frosty weather, when little else can be done in the garden, prepare label sticks to mark and number the various flowers and seeds which you propose to cultivate, when they are planted or sown. You may then also be busy in preparing implements, garden tools, and whatever may be necessary for the operations of the ensuing season.

NOTICE.

THE junior editor in taking leave of the public, who by their numerous subscriptions appear to have manifested their approval of his labors, in a higher degree than he can at all persuade himself they merit, assures them, that wherever he may be, he shall always feel much interest in the general circulation of the Horticultural Register, and he will occasionally offer articles for its pages.

If he has felt unusual zeal in the discharge of his duty, it has arisen more than anything else from a complete conviction, founded on personal experience, that Horticultural pursuits are necessary to the comforts and well being of civilized society; that they harmonize with the finest and most upright feelings of the heart, and that they embellish and improve the land in which we live, so as to make it the pride of its possessors and natives, as well as the admiration of all who occasionally visit its delightful and polished scenery.

J. E. T.

THE
HORTICULTURAL REGISTER

AND

GARDENER'S MAGAZINE,

DEVOTED TO GARDENING, ORCHARDING, AND THE CULTIVATION OF FLOWERS,

Containing 480 pages, published monthly at \$2 per annum, in advance.

T. G. FESSENDEN, Editor.

VOLUME SECOND of this periodical commences January 1, 1836, and the subscriber would respectfully solicit the attention of his patrons and the public, to the arrangements proposed for the continuance of the work.

Several gentlemen of acknowledged experience and talent, are engaged as regular contributors to the pages of the Register, in order to interest and benefit the various branches of Horticulture, and those engaged in its pursuits in different sections of the United States. This plan it is believed will give satisfaction to our readers and ensure for the work a high stand among the periodicals of the day.

The *Register* will be more practical in its character, and the results of experiments, and the experience of cultivators are earnestly solicited for publication.

The first number of volume second will be embellished with a beautiful copper plate frontispiece to be followed by occasional engravings.

It was *two years* after the Horticultural Register was proposed to the public before it was commenced, and distrust of public patronage, the reason of delay, was removed by the liberal and immediate support which it received at the commencement of the first volume.

Believing from the best possible proof, a numerous subscription list, including most of the names eminent in this country for their devotion to Horticulture, that the interest in a work of this nature is increasing, and animated by the idea that the happiness of thousands is involved in the universal diffusion of Horticultural knowledge throughout the land, the publisher assures the subscribers that no pains or expense will be spared to make it worthy the continued patronage of an enlightened American public.

GEORGE C. BARRETT, PUBLISHER,
No. 51 & 52, North Market Street.

BOSTON, DECEMBER, 1835,



