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AMHERST, MASS.

THE MAGAZINE
OF
HORTICULTURE,
BOTANY,

AND ALL USEFUL DISCOVERIES AND IMPROVEMENTS IN
RURAL AFFAIRS.

“Je voudrais échauffer tout l'univers de mon gout pour les jardins. Il me semble qu'il est impossible qu'un méchant puisse l'avoir. Il n'est point de vertus que je ne suppose à celui que aime à parler et à faire des jardins. Pères de famille, inspirez a jardinomanie à vos enfans.”—*Prince de Ligne.*

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AUTHOR OF THE “FRUITS OF AMERICA.”

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THE

MAGAZINE OF HORTICULTURE.

THE PROGRESS OF HORTICULTURE.

THE advent of a new year brings us to our oft-repeated task of summing up the progress of the past, and offering suggestions for the future; of discussing subjects which may be profitably indulged in at this season, both for our present instruction and prospective benefit. A brief account of what has been done, often teaches us many a useful lesson; for we can then detect what has been erroneous, and apply such teaching to the improvement of the future. In the wealth of ideas which flow from so many minds engaged in a science fraught with so much importance to mankind, there are many, which, but for a little reflection, would be lost sight of, though often containing the germ of what may become important truths, leading to changes in modes of culture quite at variance with our recognized notions of things. The brief history of a single flowering plant has often reversed the whole course of treatment followed for years; and though such cases are few, they remind us that we cannot overestimate the importance of a careful consideration of every subject brought to our notice.

At this somewhat leisure season, therefore, a careful retrospect of the past is not only a source of much gratification, but is a means of our advancement in the art and science of cultivation. We can weigh carefully the opinions of this or that correspondent, and see how far they correspond with our own views. And we may occasionally find suggestions that never occurred to us, which, worked out, lead to results we had never attained. And then the coming year has its anticipations, and a preparation must be made to meet them. These should not be left to the moment of fulfilment, or dis-

appointment may ensue. But exercising our thoughts now, and strengthening them by the aid of other minds, we shall accomplish even more than even our most cherished realizations. We give below a short account of the weather of the past year.

January opened exceedingly cold, with the temperature 4° to 8° below zero; but the second week it was mild again, with rain, and snow had nearly all disappeared. On the 12th, six inches of snow fell; after which it was rather mild to the end of the month, with the thermometer at 40° on the 31st.

With February the cold was renewed, the mercury falling to 6° below zero on the 2d, one of the sudden changes of 46° in thirty-six hours; on the 6th, it moderated, with rain, and the snow nearly gone. The 10th was very windy and cool. On the 16th and 18th the most snow of the winter fell nearly, on both days, a foot, and it was cold up to the 23d, when it rained, with the thermometer 60° at noon, when the snow again disappeared.

March opened quite rainy and warm, with the mercury at 50° , and the range was nearly 32° for the next fortnight, with white frosts and some rain, when it was a little cooler, though the temperature did not fall below 20° during the whole month; the 31st was quite warm, the thermometer indicating 65° .

The commencement of April was cold, even colder than any day in March. On the 3d the temperature was only 19° . The 5th was milder, and the 8th rainy. Frequent light showers continued up to the 15th, when it was quite cool again, (only 24° ,) and so continued till the end of the month, with frequent heavy white frosts, and without rain.

May was warmer than usual, and with less rain than any May for several years. On the 13th the temperature was 80° , but on the 15th it fell to 37° , with slight frost in some localities. The 19th was the first shower for more than three weeks. The 21st it was cool again, and the remainder of the month was cool, without any rain till the 30th.

June was very cool, with light rains and showers up to the 10th, when it was fine again. The 14th was the warmest

day, only 90°. The remainder of the month was mostly fine, and rather warm, without much rain.

July continued cool, with the temperature as low as 50° on the 6th. The 16th was the warmest day, when the temperature was 90°. Fine weather followed, with occasional light showers, and the month closed cool, and rather dry.

The first two weeks of August were the warmest of the season, the thermometer ranging from 80° to 85°, and as high as 98° on the 8th, with heavy showers. After a few days of cool weather the month closed fine and warm, with light refreshing rains.

September commenced quite warm; but cool rains set in on the 8th, and on the 11th the temperature fell to 42°. It was then warm and seasonable, with very heavy thunder showers up to the 29th, when a sudden change indicated only 32°, with a slight frost; and this was succeeded by another frosty morning on the 30th.

The first day of October was the coldest in the latitude of Boston for thirty years. The mercury fell to the extraordinary low point of 26°, killing everything in the way of tender vegetation, and actually freezing fruit upon the trees in more exposed localities. It then became fine again, and so continued to the close, with only one light frost, on the 16th.

November was milder than usual. In very sheltered gardens we noticed dahlias in bloom on the 24th, unusually late. The weather continued mostly fine, with occasional rains and slight frosts up to the 25th, when the temperature fell to 16°, and to 14° on the 26th, with the ground frozen two inches or more deep.

But December more than made up the average temperature; the first fortnight having been, according to careful observations, 8° below any December for forty years. The first day was only 20°, with three inches of snow on the 4th, which now covers the ground. Not one morning has the temperature reached 32°, and on the 15th, when we are writing, it has fell as low as 1°, thus closing up the year.

Notwithstanding this exhibit, which ordinarily would not be called favorable, or up to the average, the season has been attended with the most successful results. Never has there

been larger or finer crops of fruit. Apples were plentiful throughout the whole of the Northern and Eastern States; only in some portions of Pennsylvania have we heard of any scarcity. Pears were so abundant as to glut the market; the very finest selling at prices which would have been thought ruinous a few years ago. Cherries and plums literally bent beneath their heavy crops. Peaches in the favored states of Delaware and New Jersey were this season a partial failure, while in Western New York the crop was so large that immense quantities were sent to the Eastern markets, heretofore supplied from the South: in the vicinity of Boston the trees were loaded down with fruit. The small fruits were never better. The strawberry crop was unusually large. Grapes were the only fruit that seemed to have been affected by the season, which was too cold and damp in the early part, which retarded the growth of the fruit, and mildewed the foliage, and in unfavorable localities what were not in a forward state, were either injured or ruined by the sudden frost of October 1. In Ohio, however, we believe the grape crop was large and fine, and gathered in excellent order.

The large and fine pear crop has been the subject of considerable remark among cultivators, who have contrasted it with that of previous years, and various suggestions have been made as to the cause; but, so far as we have heard, all seem to agree that it was mainly owing to the remarkably dry, even, and genial weather of May, when the young fruit was setting, and the somewhat cooler, but moist and very uniform temperature of June, both free from cold westerly winds, or chilly easterly storms; the weather, in fact, for two whole months, being more like that of an orchard-house or cool grapery, than the usual changeable character of that season. Watching very carefully for years the effect of climate upon fruits, more particularly pears, we have no doubt the unusually fine crop has been owing to the above causes; and the lesson we learn from it is, that shelter and uniform moisture are essential in the superior culture of this fruit: and without them it is a difficult task to produce many of the choice varieties in fine condition. How this should be done we have already given our opinion, and shall take occasion so to do again.

The autumn was highly favorable. The sudden frost of October 1, checked the vigorous growth of trees, and the subsequent mild weather placed the trees in just that favorable condition that every cultivator wishes to find them on the approach of winter, full of ripe solid wood, covered with an abundance of plump-looking fruit buds. Whatever may be the characteristics of the coming year, the most enthusiastic fruit-grower could not desire a more favorable aspect than the trees present at this time. Our prediction last year that the "ensuing season would be more than usually fruitful" having been fulfilled, we trust we may prove as good a prophet at the present time.

HORTICULTURE.

The orchard-house having ceased to be the engrossing theme with English cultivators, our own amateurs are discussing its merits, and entering somewhat zealously into the experiment. We have heard of several attempts on a somewhat extended scale, that of the Hon. W. B. Lawrence at Newport being the largest. Around Philadelphia some structures have been erected which are favorably alluded to by horticultural writers. In our own vicinity we believe the experiment of G. G. Hubbard, Esq., is the only one of note; as Mr. Walsh has submitted an excellent account of this, we shall await with pleasure future results. Mr. Walsh's trees are all at the present time (December) in the very highest condition, and with the advent of good weather in early spring will be set to work with the expectation of a most satisfactory success. Our correspondent, the Hon. Mr. Cabot, just returned from his European tour, noticed the orchard-houses of Mr. Rivers, and we hope to have some account of them from his pen; the opinion of one so well able to judge of this kind of culture would materially assist our amateurs in regard to the importance of orchard-houses.

The grape has monopolized the space in our gardening journals, absorbed the attention of cultivators, and awakened increased interest in horticultural associations. A subject which was barely mentioned before the Concord grape appeared, now commands universal attention. It has been

attended with great good, for it has at least made known in what the merits of a fine grape consists. It has brought knowledge out of chaos: for a grape that was only "fit for jellies," by the process of free discussion has come to be the finest of all hardy table grapes, thanks to the friends of fair dealing. The Delaware is now before the bar, and while some do not admit the great superiority that has been claimed for it, others think it has no equal. As a wine grape it is undoubtedly valuable, but, as a table grape, it is too small, and we do not believe all the praise and all the certificates of its excellence will make it *the* popular grape. One might just as well try to convince the people that the Red Chasselas was a better grape to cultivate in the graperie than the Ham-burgh. A popular grape must have more than one quality. It must, above all things, adapt itself to all the circumstances of ordinary treatment, which we are satisfied the Delaware or Rebecca will not.

The Diana falls in estimation for the same reason. Fine, indeed, it is, but certain only with good treatment. Of new candidates for public favor their name is legion. The Alvey, Taylor or Bullett, Ontario, Oporto, Cuyahoga, Elizabeth, Eureka, are but a few of the great number described or noticed in various journals and newspapers. Time will establish their merits.

Upon the subject of grape culture we have given a few articles which are worthy of the attention of grape-growers. If they have no other value they may lead them to avoid errors, which have caused the failure of many painstaking cultivators. What the finer grapes appear to require is a warm rich soil, not too deep, nor too damp. For though we may ask if our native grapes do not grow in deep soils and damp places, in hedgerows and coppice, still they are *native*, and not a dozen removes from it by seed, in which all the rough hardy material is worked out. As they become civilized, they like the little refinements of a civilized home. This is the difference even between our native and our hybrid or seedling varieties.

Perhaps we should say something about some of the new seedling grapes, that are attracting attention. But as these

are yet quite new and in process of trial any decision regarding them would be premature. Mr. Bull, the originator of the Concord, has a large number of seedlings, the product of this variety, in the second and third generations. We have not had the pleasure of seeing or even tasting but few of them, but we learn that some of the number are remarkable, particularly a white variety. Mr. Bull exhibited six of his seedlings the past autumn, and the committee, in their report, highly commend them, particularly the White Seedling, which is "nearly of the same color as the White Nice, with whitish bloom berries, and large bunch, without any foxy taste whatever, and in quality equal or nearly so to any foreign grapes this day shown; and after a careful comparison with the Concord, Diana, Delaware, Hartford Prolific, Catawba, and Isabella, they consider it much the best native grape shown." And these were raised on the original vine, which never had any protection, was never winter-killed, and does not mildew in the same locality where the Diana was badly injured. It will undoubtedly be a great acquisition.

Grape culture in Great Britain and on the Continent is occupying much attention. In France, M. Robert has produced a large number of seedlings, some of which are said to be very fine. In England additional sorts have been brought forward, of which the Buckland Sweetwater and Bidwell's Seedling are the most remarkable, the former being white, with berries and bunches as large and handsome as the Black Hamburgh.

The opponents of Dwarf pear culture seem to have retired from the field, whether because they have written out, or from any change of opinion, we are not enabled to state; but more probably because they became aware of the little importance in which their labors were estimated. Our old friend, Mr. Allen, who has been very severe, has recently, however, congratulated himself upon one great result of his Dwarf pear articles, that being "an entire revolution in the manner of working, cultivating and restricting the variety of pears proper to be worked upon the quince; and for such valuable labor he charges the indulgent public," who have been saved large losses, just—nothing—although he "receives any amount of

contumely for his interference." Now we do not exactly understand what he means, or what new mode of cultivation has been introduced, but we do know that he is greatly mistaken if he thinks he has added anything to what was known before—as to restricting the kinds to be worked on the quince. A reference to our Magazine, as long ago as 1849, (Vol. XV. p. 390,) will show that we had often stated that there were but a limited number of pears that would succeed upon the quince, and advised our cultivators to be cautious in working new varieties.

Dwarf apple culture, which has as yet received but little attention, is a subject deserving the especial notice of fruit-growers. The apple, as a standard, has been almost excluded from suburban gardens, on account of the room required for the trees, and their long time in coming into bearing. But Dwarf trees, as objects of ornament as well as luxury, are scarcely less valuable than the pear. They need but little space, come into bearing immediately, and a small plantation of them will supply an abundance of fruit of the finest quality. Their importance has been altogether overlooked. The truth with standards is, that when they begin to bear they produce more fruit than is needed, and they do not afford a variety or succession, unless several sorts are grafted on a tree. Dwarfs obviate this; a single tree or two produces as many of one sort as are wanted, and the little room they occupy allows the planting of two or three dozen varieties, which ripen their fruit every week from July to winter. They supply the possessor with apples of varied beauty, dissimilar flavor, and the highest excellence. We shall have more to say about them hereafter.

The introduction of new strawberries, and the qualities of our American seedlings, have been subjects of considerable interest. Several new foreign kinds have fruited the past year, and some of them have attracted much attention, particularly a Belgian kind, *La Constante*, which has proved, so far as our experience goes, the most satisfactory foreign variety. Another year will more fully prove its value for general cultivation. It is a large, very handsome and well-flavored berry, and the vines appear to possess all the charac-

teristics of our American seedlings. Triumph de Gand, an old sort, is attracting some notice at the South, but we have no evidence of its excellence here. It remains to be seen whether it will bear the ordinary treatment to which every variety must be subjected for universal culture. Wilson's Albany, so great a favorite in some localities, does not appear to be very highly estimated around Boston, where the market has so long been supplied with superior varieties. The Austin Seedling, Bartlett, and other new kinds, will come up for trial during the coming season, when we shall be better able to judge of their merits.

Progress in the science of culture is evinced in the valuable articles we have copied from the French, illustrating the new mode of training the pear and pruning the peach. The first, by what is termed training in single oblique lines, (Vol. XXV. p. 452,) and the second by the new mode of pinching the young wood, as practiced with the pear, and fully described in our last volume, (p. 298.) We see no reason to doubt the truth of M. Dubreuil's statements, who is one of the most skilful gardeners in France; and the success which has attended his experiments must result from similar treatment in our own climate, so much like that of France. We shall be glad to see it tried, and give a report of the result. Other contributions to scientific culture are those of Mr. Cornelius, an amateur of Philadelphia, who strikes cuttings and grafts by an original process of his own invention. Mr. Cornelius first gave us a brief account and rough sketch of his method a year ago; but in the hope of receiving a more detailed plan, or of inspecting his experiments personally, we neglected to make use of the information. Having more recently attracted attention we shall give an article in reference to it in our present volume. For some purposes his invention, no doubt, possesses considerable value, founded as it is on physiological principles.

A review of pomological information would only be a repetition of our gossip for the year, to which we refer for an account of all the new fruits, &c. Some, undoubtedly, have been overlooked, for, among the mass that are yearly brought to notice, it would be almost impossible to enumerate

all. Yet we think no variety of importance has been omitted. Every local fruit does not possess qualities that entitles it to universal recognition, though it may be well enough for those who have the time and the leisure to follow such pursuits, to give them a trial. We have recently noticed in some of our exchanges that the Southern apples, of which so much has been said, are "generally not equal to the most widely known standard sorts." A full review of the doings of the last Pomological meeting in Philadelphia will appear as soon as we receive a copy of the proceedings, which make any further remarks regarding new fruits unnecessary at this time.

FLORICULTURE.

The introduction and culture of ornamental-foliaged plants continue to interest amateurs and nurserymen, both at home and abroad, and new acquisitions are continually being made by collectors of plants and by hybridization. Continental plant-growers, with a zeal which commands admiration, have enriched our collections with many very splendid specimens; and, without naming others, the *Caladiums* of M. Chantin, and the Ferns and *Begonias* of M. Linden, have created an entire new feature in every collection of hothouse and conservatory plants. Nor have our hardy trees and shrubs been neglected in the passion for these ornamental-leaved plants; for the enthusiasm of cultivators has led them to select, from the millions of seedlings annually raised, numerous variegated, singular or peculiar tinted leaves, which will increase the variety, beauty, and general interest of our lawns and pleasure grounds. We shall continue our figures and descriptive accounts of the most popular ornamental-leaved plants.

Increased attention has also been bestowed upon another class of plants, the Ferns—both hardy and tender—which are now leading objects among plant cultivators in Great Britain, and to a slight extent, we are glad to know, among our own nurserymen and amateurs. The introduction of the new variegated species, *Pteris argyrea* and *tricolor*, greatly increased the taste, already apparent, and the hope of adding many of equal beauty gives renewed interest in the introduction of others which may have been overlooked in the

collection of flowering plants. Our own hardy Ferns are many of them exceedingly beautiful, and a group of the best would form one of the most attractive objects in our gardens; easily cultivated, we hope to see them, as well as exotic species, more frequent denizens of every amateur collection. We have heretofore only incidentally referred to these plants, though our correspondent, Mr. Flagg, has eloquently pleaded for them, (Vol. XX. p. 300.) But we intend they shall not receive the same neglect hereafter.

Plants of quite another character, belonging to the stately or symmetrical group, have within a few years, from somewhat neglected objects, become highly popular. These are the Yuccas, the half-hardy Palms, the Pampas Grass, &c. Either as ornaments of the lawn in summer, and the conservatory in winter, or as decorative objects of the garden, they are among the most attractive plants; especially are the hardy Yuccas noble objects; their tall spikes of large white bell-shaped flowers, set off by the rigid and symmetrical foliage, giving an oriental aspect wherever they are introduced. The Pampas Grass is a magnificent thing; and now that it has been found to be of easy treatment we hope to see it become a general favorite.

It is gratifying to observe that a higher standard of culture is beginning to be appreciated. Amateurs, through our Horticultural Societies, are demanding it, and with the demand the supply will come; only let the encouragement be reciprocal, and we venture to predict that an inferior-looking specimen will never be offered for exhibition. But it must not be forgotten that superior culture is only attained by superior skill, and no little expense; and to require the performance of a great deal on the part of the amateur or professional man, it is important that the reward should be in some proportion to the former, not as a remuneration, but as a prompter to his zeal in the cause of floricultural science.

The past year has been prolific in the introduction of new and beautiful plants. Perhaps the most important, because adapted to every garden, have been the Japan pinks, which are truly magnificent. The new varieties of the Nasturtium have also been a new feature in this class, heretofore tall and

straggling, but now reduced to compact bushes of gay and brilliant colors. The new varieties of Phlox are great improvements, where it was thought perfection had almost been reached: the new striped kind, *Triumph de Twickel*, is very delicate and superb. The Gladioli, so rich and splendid in their variety of tints, have been still further enriched by new and elegant combinations of color. The Pyrethrum, so long an ordinary garden plant, is becoming, by the skill of the hybridizer, a beautiful addition to every collection. *Tritoma uvaria* and its varieties have equalled the reputation which preceded their introduction, and they must be considered invaluable ornaments to the flower border.

We might name many other attractive plants, without counting the new Azaleas, Pelargoniums, Roses, and Begonias, but as these have been noticed or described under our Floricultural reports, we must refer to them for further information.

ARBORICULTURE.

There is no abatement in the taste for coniferous trees in Great Britain, or on the Continent. Very few additions have been made, but the more recent acquisitions have been multiplied rapidly, both by seeds and grafts, and are now sold at prices within the reach of the mass of cultivators. It is gratifying to know that there is a prevailing taste among our own planters for hardy trees of the same class; and many small collections have been begun, which we hope to see increased to large ones ere long. Every day reveals the fact, that though our country, the richest of any in native species, abounds in immense plantations, they are fast disappearing in the vicinity of our large towns and cities, leaving an apparently barren and treeless aspect in winter, when they are so much needed as objects of shelter. For this purpose, if no other, their introduction into suburban gardens is especially desirable.

But it is as ornamental features of a landscape that we hope to see them planted far more extensively than at present. Their perpetual verdure is, at all times and in all seasons, cheerful, and, in judicious combination with deciduous trees, give to all grounds, of greater or less extent, a landscape

effect that cannot be produced without them. Our wish now is to have all the supposed hardy species have a fair trial, to test their capacity for enduring our New England winters unharmed.

LANDSCAPE GARDENING.

Some progress has been made in this department during the last few years; a more general desire has been manifested to seek the aid of professional men in laying out our country residences; and though there are few who are competent to the task, the simple demand alone shows an appreciation of true landscape art.

The New York Central Park we have just alluded to, and noted the progress made towards its completion. The Baltimore Park is under the charge of our old correspondent, Mr. H. Daniels, of New York. From his well-known ability as a Landscape Gardener, and the facilities he has had for obtaining information in his profession, we doubt not he will lay out the grounds in an acceptable manner, and afford the public an opportunity of learning what a City Park should be.

Boston, with lamentable taste, is cutting up the very small public grounds she is fortunate enough to possess into a skating pond, for merely a week or two's amusement in our variable and uncertain winters. Twenty acres of ground are being spoiled merely to gratify this now fashionable sport, which could be had on a scale, which nature alone supplies, by going a much less distance than the New Yorkers who visit the Central Park. The thousands of dollars that have been already spent, would have filled, graded and planted the ground in such a manner as to have been alike ornamental and honorable to the city. We have been surprised at the immense appropriations for destroying what few acres of ground have been forever dedicated to the use of her citizens.

HORTICULTURAL LITERATURE.

Few additions have been made to our horticultural literature. Beyond the little manuals which appear yearly, the *RURAL ANNUAL*, published by Mr. Harris of Rochester, and

the ILLUSTRATED REGISTER, by Messrs. Tucker & Son of Albany, there is not much to note. BRIGHT ON GRAPE CULTURE has attracted some attention from the peculiar notions of the author on shallow planting. The Proceedings of our Agricultural Society have become the most important sources of agricultural information; and foremost among them we must place the TRANSACTIONS of the New York State Agricultural Society, by Col. Johnson, the efficient Secretary. That for 1859, just issued, is full of useful and instructive papers. The new edition of Dr. Harris's work on Insects is, we believe, nearly ready for publication, and will be a valuable work. The Agricultural Journals have been considerably improved, and some of them enlarged.

OBITUARY.

We have the melancholy duty of adding the names of many horticulturists, who have deceased during the year. A. H. ERNST, of Cincinnati, Ohio, died on the 13th of February last, at his residence in that city, at the age of 64 years. He was of foreign birth, but was so thoroughly nationalized that he took a very deep interest in American institutions. He was an early subscriber and occasional correspondent of our Magazine, and was the pioneer Pomologist of the West. He was one of the originators, and first President, of the Cincinnati Horticultural Society, and President of the Ohio Pomological Society at the time of his decease. His modesty, suavity of manners and kind feelings, endeared him to a large number of friends.

Mr. BENJ. V. FRENCH died on the 10th of April at Dorchester, Mass., aged 68 years. Mr. French was best known as the Norfolk farmer, from the interest which he took in agriculture, and the many experiments he conducted on his former place at Braintree. He was one of the founders of the Massachusetts Horticultural Society, and for many years one of its Vice-Presidents. He was also a Vice-President of the United States Agricultural Society, and an active member and officer of other kindred State and County Associations. A large number of acquaintances deeply lament his death.

Mr. GEORGE C. THORBURN, the well-known seedsman of

New York, and son of Grant Thorburn, died at his residence in Newark, N. J., in November, from injuries received from a fall. He was universally known and esteemed, both for his horticultural enthusiasm, and his public-spirited character as a citizen. To him, as much as to any other man, are the cultivators of the whole county indebted for the early introduction of numerous plants, seeds, and vegetables. He was an early friend and occasional correspondent of our Magazine. None knew him but to love him, and his memory will be gratefully cherished, wherever he was known. He had been appointed superintendent of Mount Vernon, but the time had not arrived to enter upon its duties, which he would undoubtedly have filled better than any other person. He died at the age of 66.

Mr. SAMUEL WALKER, the well-known nurseryman, of Roxbury, died, at his residence in that city, on the 11th of December, at the age of 67. Mr. Walker is known to many of our readers as an early contributor to our pages. He was of foreign birth, and by profession a printer, which he followed up to a late period. As the publisher of Josephus's Works and Hinton's United States, he circulated an immense number of these valuable books. He early became attached to his adopted country, and latterly filled many important offices with credit and zeal. For many years he was deeply engaged as an amateur cultivator of the Tulip, of which, at one time, he had a large and fine collection. During the last ten or fifteen years he became interested in fruit-growing, and not only converted his flower-garden into a fruit-orchard, but extended his premises and commenced the labors of a nursery, in which he was deeply engaged. He was formerly President of the Massachusetts Horticultural Society, and had previously filled the important trust of Treasurer for several years. As a pomologist and cultivator he was well known and much esteemed.

Mr. JOHN WASHBURN, of Plymouth, Mass., died in November, aged about 65 years. An ardent horticulturist and zealous cultivator of new fruits, he introduced and disseminated in his section of the State all the varieties worthy of general cultivation, and his loss will be greatly deplored.

Among others who have devoted themselves to horticultural science, we may name M. LOUIS VILMORIN, the eminent seedsman of Paris, who died in the early part of the year. Mr. J. W. JONES, editor of the *Southern Cultivator*, died in January last. Mr. E. W. KEYSER, Vice-President of the Pennsylvania Horticultural Society, and one of its most active and distinguished members, died on the 7th of February. He was universally respected. Mr. ROB. ELRINGTON, superintendent of the London Horticultural Society's garden, died the latter part of September. He was not only a thoroughly scientific gardener, but a writer, whose practical communications added greatly to the horticultural literature of the present century. His contributions commenced in Loudon's Magazine, and were continued in various periodicals up to his death. Few men have done more to raise the character and condition of the British gardener to their present elevation.

THE SACREDNESS AND USE OF STANDING GROVES.

EPITOMIZED FROM EVELYN. BY WILSON FLAGG.

STANDING woods and forests were not only the original habitations of men, for defence and fortresses, but the first occasion of that speech, polity and society which made them differ from beasts. According to Vitruvius, the fires in the woods, produced occasionally by the friction of one tree against another in a violent wind, invited the savage foresters by its warmth and by the spectacle it afforded them. By this accident assembled together, they began to find the benefit and sweetness of social intercourse. But they advanced also the interests of society, by the timber they furnished for all kinds of building purposes, and for the ships which landed people into new worlds. Indeed, trees and woods have twice saved the world; first by the Ark, then by the Cross; making full amends for the evil fruit of the tree in Paradise, by that which was borne on the tree in Golgotha. But that we may give an account of the sacred and other uses of these venera-

ble retirements, we will proceed to describe what those places were.

Though Sylva was the more general name, denoting a large tract of wood or trees, there were several other titles attributed to greater or less assemblies of them. When they planted them for pleasure and shade only, they called them Nemora, corresponding with our limited groves: and as the moderns have parks for the preservation of game, so they had their Saltus and Sylva inviæ, secluded for the most part from the rest. But no descriptions of wood are more frequently mentioned and celebrated by ancient authors, than those plantations which they called Luci; and which, though sometimes dedicated to particular purposes, comprehended also all kinds of forest. In many cases Lucus was distinguished from Sylva, by its use and dedication, for solemn religious rites, and never allowed to be violated with the axe. Some had from great antiquity been consecrated to holy uses, both by the Gentiles and the Patriarchs, the last of whom did frequently retire to such places to serve God, compose their meditations, and celebrate sacred mysteries, prayers and oblations; following the tradition of the Gomerites, or descendants of Noah, who first peopled Galatia and other parts of the world, after the universal deluge. Abraham is said to have entertained God himself under the branches of an oak. Some report that this oak sprang from a staff, which one of the angels, who appeared to the patriarch, fixed in the ground. There can be no doubt that the patriarchs performed their devotions in groves, till there was a fixed altar, and worship was confined to the temple and tabernacle.

From the very infancy of the world, in which Adam was entertained in Paradise, and Abraham received his divine guests under the shade of trees, all intelligent persons have embraced the solace of shady arbors, and all devout persons have found how naturally they dispose our spirits to religious contemplations. Hence they often planted their trees in circles, and gave that capacious form to the first temples, for the accommodation of their assemblies, and also because that figure resembles the heavens. These had no roof but heaven,

until the goodliest cedars and most costly woods were carried to Jerusalem, to build the sumptuous temple of Solomon.

In such circular recesses were the ancient oratories built at some distance from the cities, and made use of among the Gentiles as well as the Jews. They formed also the rendezvous where poor people used to frequent to beg alms of devout and charitable persons. It was then considered impious to cut down a single tree or stick of these groves. Plutarch describes the feast of Bacchus as closely resembling the Jewish feast of tabernacles, attended each by the custom of carrying about branches of palm, citron and other trees. Evelyn complains of the imitation of this custom on May-day in England, by young people, who cut down and spoil young springers, to dress up their May-booth, and dance about the pole like the wanton Israelites about the golden calf. On account of certain abuses of these rites, which were performed in groves, denunciations against them are found in divers places of Holy Writ. In fine, Paradise itself was but a kind of memorable temple or sacred grove, planted by God himself and given to man, for religious purposes,—a place consecrated to sober discipline, and to contemplate those mysterious and sacramental trees which they were not to touch with their hands. Holy men used afterwards to plant and cultivate groves, when they performed divine worship; and the Rabbins add a reason why they were reputed so venerable; because, being retired, they were apt to compose the soul, and fit it for divine actions.

It is natural for men to feel an awful and religious terror, when placed in the centre of a thick wood; on which account, in all ages, such places have been chosen for the celebration of religious ceremonies. Pliny, speaking of groves, says, “these were of old the temples of the gods; and after that simple, but ancient custom, men at this day consecrate the fairest and goodliest trees to some deity or other; nor do we more adore our glittering shrines of gold and ivory, than the groves in which, with a profound and awful silence, we worship.” Individual trees were sometimes deified, and the Celtic statue of Jupiter was a prodigious tall oak; hence the reverence of the Chaldean priests for that tree.

Learned men have mentioned that it was the custom of prophets and persons inspired of old, to sleep upon the boughs and branches of trees, on mattresses and beds made of their leaves, when they asked advice of God. The *Laurus* and *Agnus Castus* were trees which were supposed greatly to compose the fancy and to facilitate true visions. Hence the Delphic Tripods, the Dodonean Oracle in Epirus, and others of that nature, had their origin; for indeed the Delphic Oracle was first made of the branches of laurel, brought from Thessaly, bended and arched over, in the form of a bower. From hence began temples to be erected and frequented in such places, and we find sanction for the custom among the laws of the Twelve Tables. As there was hardly a grove without its temple, so almost every temple had a grove belonging to it, where they placed idols, altars and lights, endowed with fair revenues, which the devotion of superstitious persons constantly augmented. Hollow trees were reputed to be divine, and the habitation of departed souls; and that they were places of protection and privileged like churches and altars, appears from Livy and others.

The famous Druids, as is well known, celebrated their mysteries in woods and forests, and their religion has been called Oak-theology, from their veneration for the oak. They chose the woods not only for their religious exercises, but their courts of justice. The whole institution and discipline was afterwards translated into Gallia, and the ancient Gauls used to travel to Britain, the once happy island of groves and oaks, to obtain their initiation. That in Great Britain men should be so extremely devoted to trees, and especially to the oak, the strength and defence (as Evelyn remarks) of all their enjoyments, is not to be wondered.

From these sylvan philosophers and divines, it is believed that the great Pythagoras instituted his silent monastery; and we read that Plato entertained his auditors among his walks of trees. After they were destroyed by Sylla, who cut them down to build forts against Pyrræus, Plato planted another grove with his own hands, wherein grew that celebrated *Platanus*, under which he introduces his master Socrates discoursing with Phædon concerning beauty. Un-

der such shades and walks was at first the famous Academia, so venerable that it was esteemed by the old philosophers profane so much as to laugh in it. Thucydides is said to have written his noble history in the Scaplan groves; and Pliny, in order to show by his own example how study and forest sport may consist together, tells his correspondent, how little the noise of the chasers and bawling dogs disturbed him. So far was he from being idle, when at any time he indulged himself in that healthful diversion, that, beside his javelin and hunting-pole, he never omitted to carry his style and table-book with him, that upon any intermission, while he now and then sat by the toil and nets, he might be ready to note down any noble thought, which might otherwise escape him. The very motions, says he, and agitation of the body in the wood and solitude, are strong incitements to meditation; and he counsels his friend to "be sure never to carry your bottle and bisque into the field, without your style and tablet; you will find Minerva as well as Diana in the woods and mountains."

Indeed the poets thought of no other heaven upon earth, or elsewhere; for when Anchises was setting forth the felicity of the other life to his son, the most lively description he could make of it was to tell him—"We dwell in shady groves." Therefore, wise and great persons have always had these sweet opportunities of recess; and poets and philosophers have not only in times past withdrawn themselves from the vices and vanities of the great world, into the innocent felicities of groves and woody retreats, but have also commended nothing so much in their immortal works. Here then is the true Parnassus, the true Castalia; here dwell the muses, and respond from their venerable trees to all sincere invocations. Indeed the ancients honored temples with the name of groves, though they had not a tree about them, because at an earlier period a temple and a grove were the same.

Innumerable are the testimonies I might produce concerning the inspiring and sacred influence of groves, from the ancient poets and historians. Here the noblest raptures have been conceived, and in the walks and shades of trees poets have composed verses which have animated men to glorious

and heroic actions. Here orators have made their panegyrics, historians their grave relations, and profound philosophers have loved here to pass their lives in repose and contemplation. Nor were the groves thus frequented by great scholars and wits only, but by the greatest statesmen and politicians also. It was under a vast oak, growing in the park of St. Vincents, near Paris, that St. Louis was wont to hear complaints, determine causes, and do justice to such as resorted thither. People have been known to crown their kings under a goodly tree, or in some venerable grove, where they had their stations and conventions; for so they chose Abimelech. Augustin the monk held a kind of council under a certain oak in the west of England, concerning the right celebration of Easter, and the state of the Anglican Church; where also it is reported he performed a great miracle. The Athenians were wont to deliberate on their gravest matters and public affairs in groves. Thus the poet Waller:—

In such green palaces the first kings reigned,
Slept in their shades and angels entertained;
With such old counsellors they did advise,
And by frequenting sacred groves grew wise.
Free from th' impediments of light and noise,
Man, thus retired, his nobler thoughts employs.

Groves were used also for private affairs. Young people used to engrave their mistresses' names on the bark of trees. Euripides, in *Hippolitus*, shows us how they made the incision whisper their soft complaints, and tell the fair *Cydicpe* how she was beloved. These pretty monuments of courtship were much used on the cherry tree, on account of its smooth bark. Deep incisions were made also on the plane tree, so that one might run and read them. And thus forsaken lovers appeal to pines, beeches, and other trees of the forest.

To the gods, and to the memory of famous men and heroes, were dedicated a great number of groves; and a certain custom then was for the parents to plant a tree at the birth of an heir or son, presaging, by the growth and thriving of the tree, the prosperity of the child. Thus we read in the life of *Virgil* how far his natalitial poplar had outstripped the rest of its contemporaries. And the reason doubtless of all this

was the general repute and sanctity of trees ; for no sooner does the poet speak of a grove, but immediately some consecration follows, as believing that out of these shady profundities some deity must needs emerge. The consecration of these nemorous places, together with the rites attending them, we find in Quintus Curtius, and in what is related of the Longobards, who not being capable of philosophizing on the physical causes which they deemed supernatural and plainly divine, were allured, as it is likely, by the gloominess of the shade, size and altitude of the stem, floridness of the leaves, and other accidents. And this deification of their trees, among other things, beside their age and perennial viridity, says Diodorus, might spring from the manifold use they afforded, and which haply had been taught them by the gods, or rather by some godlike persons, whom, for their worth and the public benefit, they esteemed so. And it might be a motive to this reverence that divers of them were reputed to have been metamorphosed from men into trees, and again out of trees into men ; as the Arcadians gloried in such an origin. That every great tree included a certain tutelar genius or nymph, living and dying with it, all the poets declare ; a special instance of which we have in the prodigious oak, that fell by the fatal stroke of Erisichthon ; but the Hamadryads, it seems, were immortal, and had power to remove and change their wooden habitations.

The groans of these nymphs were supposed to be uttered when the stroke of the axe was laid upon the tree ; and the superstition may have had its origin in the creaking and groaning sound, which a tree often makes during its fall ; and sounds often issue from trees by the action of the wind. Something of this kind probably gave occasion to the famous Dodonean Oracle. Methinks (says Evelyn) I still hear, sure I am that I still feel the dismal groans of our forests, produced by that dreadful hurricane of November, 1703, which subverted thousands of goodly oaks, prostrating the trees, laying them in ghastly postures, like whole regiments fallen in battle. The public account reckons no less than three thousand brave oaks in one part only of the forest of Dean blown down ; in New Forest in Hampshire about four thou-

sand ; and in about four hundred and fifty parks and groves, from two hundred large trees to one thousand of excellent timber, without counting multitudes of fruit and orchard trees ; and about the same proportion were destroyed through all the considerable woods in the kingdom. It is not to be thought strange that certain nations should worship the wind which is capable of doing such mischief, as the Indians do the devil, that he may do them no harm.

Scaliger affirms he could never convince his learned antagonist, Erasmus, but that trees feel the first stroke of the axe, and discover a certain resentment, and seem to hold the edge of the fatal tool, till a wide gap be made. And so exceedingly apprehensive they are of their destruction, that, as Zoroaster says, if a man came with a sharp axe intending to fell a *barren* tree, and a friend importunately deprecate the angry person, and prevail with him to spare it, the tree will infallibly *bear plentifully* the next year. We might here produce the wonderful apparitions of spirits interceding for the standing and life of trees, when the axe has been ready for execution ; also accounts of the fearful catastrophe of such as causelessly and wantonly violated those goodly groves. One might fill a volume with the histories of groves that were violated by wicked men who came to untimely ends, especially those upon which the misletoe grew, than which nothing was reputed more sacred.

The Druids esteemed nothing more venerable than the misletoe and the oak upon which it grows. Indeed they did nothing of importance without some leaves or branches of this tree, and they esteemed its very excrescence as sent from heaven. The misletoe was not to be gathered, but cut by the priest with a golden axe, praying for a blessing upon the Divine gift ; after this, two white bulls were offered up as a sacrifice. The Minturensian grove was esteemed so venerable, that a stranger might not be admitted into it ; and the great Xerxes, when he passed through Achaia, would not touch a grove which was dedicated to Jupiter, commanding his army to do it no violence. It was not lawful to hunt in these consecrated groves, unless it were to kill for sacrifice. It is reported by Strabo, that in the Ætolian groves, sacred

to Diana, the beasts were so tame that the stags would follow a man, licking his hands and fawning on him. There were many forests consecrated to Jupiter, Juno and Apollo, and all the gods. And so superstitious were the people that there was no meddling with these devoted trees, and even before they pruned one of them, they performed sacrifice lest they might offend in something ignorantly. But to cut down was a capital offence, and never to be done with any offering whatsoever, except in case of lightning, when the whole tree that was struck might be felled, as marked by heaven for the fire. Cicero sharply reproves Gabinius for his prodigious spoil of woods in Greece; and it was in late days held a great piece of inhumanity in Charles the French king, when he entered the Frisons, after he had slain their leader, to cut down their woods, a punishment never inflicted upon the enemy by sober princes. England, however, has in former days suffered severely by this kind of spoliation committed by usurpers and sequestrators.

To these remarks of Evelyn may be added that the superstitions connected with trees and groves very probably originated with wise men, who believed that such holy fears alone could restrain men from devastating the whole earth, by the destruction of woods. The people of the United States, unfortunately, are restrained by no such fears or reverence. The god whom they most worship is the steam engine, and they believe it lawful and right, if needful, in order to feed this monster, to sacrifice all the woods in the land. Philosophy, at the present time, strives in vain to provide that security for trees which was so happily provided by the religion of the ancients.

In all ages whole countries, regions, cities and towns have received their names from trees; as Cyparissa in Greece, Cerasus in Pontus, Laurentum in Italy, Myrrhinus in Attica. Hence the Viminalis Æsculetum, &c., all of which may be attributed to the spontaneous growth and abundance of such trees in the respective soil. In England a part of Kent was called Seven Oaks, as reputed from some goodly oaks growing about it, and Old Sarum, or Sorbiodunum, had its name from Sorbus. Mr. Camden thinks the whole country of

Buckingham had its name from the plenty of beech trees in that region.

The author concludes by speaking of some of the uses of forests, that in some parts of the world they have no water to drink except what their trees afford them—sometimes from their sap, and sometimes from their drippings, when exposed to the evening dews. He thinks that if the woods were destroyed in warm countries, the inhabitants might perish for want of rain. Thus Barbadoes grows every year more torrid, and has not near so much rain as it formerly enjoyed when it was better covered with trees; and in Jamaica the rains are observed to diminish as their plantations extend.

HORTICULTURAL ORTHOEPY.

BY GEO. JAKUES, WORCESTER, MASS.

THE annual round of horticultural life is far from being all sunshine and roses. The successive seasons invariably bring with themselves obstacles to be surmounted and difficulties to be overcome, so that it is only by unremitting warfare against the adverse agencies of animate and inanimate nature, that any rude semblance of the humblest features of the primeval Eden can be maintained in a modern garden. Among these troubles, there is one—if indeed it may be ranked with them—which would be altogether insignificant, were it not magnified into importance by the constant liability of its recurrence. While other annoyances—frost, drought, blight, insect, flood—have each their appointed time, and disappear, there is not a day in the year when an occasion to mention the scientific or foreign names of fruits and flowers may not occur. Add to this, also, the disagreeable certainty with which a single mispronunciation may damage one's literary reputation, and the correct enunciation of these perplexing words becomes a subject of some interest.

The real difficulty with the orthoepy of these names, is that they are not English. One large class of them, the entire vocabulary of botany, is derived from the Greek and Latin

languages. Of these ancient classic tongues the true sounds have been to a great extent irrecoverably lost. Nevertheless, as most of the finest specimens of the literature of antiquity were produced before grammars or dictionaries were known, there can be no doubt that these languages were originally written as pronounced, and, consequently, that the number of syllables in any of their words must have equalled the number of vowels or diphthongs. This rule of syllabication, therefore, is still adhered to; but, aside from this conformity to ancient usage, each modern nation now pronounces Greek and Latin according to the analogies of its own language. Thus the Greek and Latin orthoepy of Italy is Italian; of France, French; and of English-speaking countries, English. It is true, indeed, in regard to the pronunciation of these old languages, that a kind of compromise system—based on the general similarity of the sounds of the continental tongues, and hence styled European—has been attempted to be introduced into this country; but, while the very title of this system is a misnomer, its reality, as heard in our schools and colleges, seems ludicrously unlike anything else that human ear ever listened to, either on the earth or in the waters under the earth!

The best Greek and Latin pronunciation, then, of Great Britain and the United States—the *Cambridge* pronunciation of both countries—is, as it should be, substantially governed by the laws of English orthoepy, differing therefrom, for the reason above given, merely in making the number of syllables of any word equal to its number of vowels and diphthongs. The only considerable source of vexation, in the pronunciation of a word of this class, consists in knowing whether the accent—or stress of voice—fall on the second or third syllable from the end. For example, the Greek name, *clem-a-tis*, and the Latin, *gla-di-o-lus*, are both very often spoilt by being accented on the second syllable from the end; while in the word, *pol-y-an-thus*, that syllable is the proper one to receive the accent. The grammarians, of course, furnish copious directions for the correct accentuation of the Greek and Latin languages, but, as many a fine garden would look worse than the weedy field of Solomon's sluggard

before these dry rules could be fixed in the memory, a far more efficient remedy for mispronunciation would be for horticultural editors to print these botanical terms with the accents marked, after the manner of some of our popular school-books.

A much more troublesome description of words now remains to be considered. What is merely Greek or Latin, in his vocabulary, the gardener may with a little perseverance contrive to master. The case is widely different, in regard to many of the floral and pomological names which he receives from the living languages. With these it is no longer a mere question of syllables and accents, but the various organs of speech are very frequently to be exercised upon sounds to which they are wholly unaccustomed. The pronunciation of these foreign appellations, which are for the most part either geographical or personal, is an extremely difficult branch of orthoepy. While the strict letter of orthoepical justice doubtless would require that all such foreignisms should be traced home for their true pronunciation, the law, practically, proves too intolerably severe; for who proposes to undertake to speak French like a Frenchman, or German, like a German? Nor, on the other hand, can a too near approach to the opposite extreme be possibly endured, since a man must possess iron nerves, indeed, who would not cut down his finest pear-tree, were his neighbors to conspire together to call it a "*Glout Morceau*," with the full English sounds of all the letters! The fact is, these foreigners in the domain of our English speech must be regarded, horticulturally speaking, as being in all stages of acclimation. The name of the French capital, for example, is *perfectly* Anglicized, and is pronounced *Par-is*, as though it belonged to our own language. To give the letters the sound *Pah-ree* (accenting the *ree*,) after the French, would, while one is speaking English, be the height of pedantry. Of other words, again, a portion only of the letters are Englished, as the word *depot*, which, on the authority of Dr. Worcester, should be enunciated like the first four letters of *depose*, that is, the first syllable must sound English, and the last, French. As a third illustration, a phrase may be instanced, which, although totally un-An-

glicized, is still so familiar that even our third-rate bar-room politicians make a cheap display of learning, by throwing off a "*coup d'Etat*," with the faultless intonation of a well-bred Parisian. Many other similar fragments, also, of easily utterable phraseology, especially from the Italian and Spanish, lose nothing of their vernacular enunciation, in passing into use here, since even American-born children pronounce with entire correctness such names as *Civita Vecchia*, *Trinidad*, &c. But such accuracy occurs only when the foreign word contains no vocal elements unknown to the English tongue; for the moment Jonathan, or his cousin Mr. Bull, tries his inexperienced jaws upon such letters as the French *u*, the German *ch*, or the Spanish *j*, the poor sounds rarely escape except in a most mangled condition. Even the veriest trifle of a difficulty has served to transform the names of two well-known pears—*Belle et Bonne* and *Duchesse d'Angoulême* into *Belly-bone* and *Dutch's Dangle-limb*!!

The orthoepy of words from foreign living languages being thus spread—so to speak—over the whole intermediate space between vernacular and English, their pronunciation, by the educated, constantly tends towards affectation, as towards vulgarity, on the part of the ignorant. The safest guide, then, must still be the same with these, as with all other words;—it is to follow the usage of the best-educated society in England and the United States. From this usage there can be no appeal. But how shall this standard pronunciation of so many outlandish names be diffused among the millions who plant and prune skilfully enough, but have little leisure or taste for reading? The question admits of some sort of an answer, at any rate. Whoever writes a treatise upon fruits, would contribute greatly to this end, by giving the pronunciation, when not obvious, of every un-Englished word that his work should contain. Editors of magazines and other publications specially designed for horticultural readers, might also make a rule, for the future, to exhibit the orthoepy with the first mention of any new foreign name, of the class above described; and indeed an extension backward of the rule to a goodly number of words now in familiar use, would doubtless prevent many a ludicrous blunder. In some such way,

it seems possible that the orthoepical mistakes of reading people might be gradually diminished, while those who do not read would profit by their intercourse with such as do. Obviously, it would not be easy, in all cases, to fix upon the least objectionable pronunciation of some of these words; nor would it be always possible to represent their exact sounds by English letters. Still, to attempt nothing, because everything cannot be accomplished, is a fool's wisdom, and shuts the door against all improvement.

In the meanwhile, and without wandering farther into this literary labyrinth, it may be safely concluded, that, until more light shall be in some way diffused, these troublesome words, whether from ancient or modern sources, will continue to be divided and spoken by the generality of people, pretty nearly according to the English sounds of their letters. To demand more than this from those who have no opportunity to learn the elegantly correct pronunciation of finished scholars, would be to require white kids of the man who sells charcoal in the public streets.

We commend the communication of Mr. Jaques to the attention of our readers. We have endeavored as far as possible to obviate what he so truly sets forth as an obstacle to correct pronunciation, not only by carefully accenting all the names of plants enumerated in the Magazine, (see Index,) but by giving their derivation, whether from the Greek or Latin, commemorative or aboriginal, by the use of italics. The names of fruits are more difficult, as Mr. Jaques has shown, and can only be rendered more uniformly spoken in the way he indicates.

The late Mr. Loudon was the first to introduce accentuation in his *Gardeners' Magazine*, in 1826, which system was followed in all his subsequent works; and as a guide to all who would attain correctness, as nearly as possible, we shall publish in an early number the rules which he laid down, and which we have invariably followed, as a reference to our volumes will show. We hope thereby to do all in our power to accomplish what Mr. Jaques suggests.

ON THE INCLINATION OF GLASS ROOFS.

BY THOMAS F. WALSH, GARDENER, BOSTON LUNATIC HOSPITAL.

THE proper inclination to the horizon of the roofs of horticultural structures is a principle of the utmost importance in the construction of these edifices; and directly in proportion to its importance it appears to be neglected or overlooked. Why this should be, in the present advanced state of the science, it is difficult to understand; and being so, it is a blot on our horticultural escutcheon.

“Like buoys that never sink into the flood,
On learning’s surface we but lie and nod.”

Professional writers, since the time of Knight, have strangely omitted all consideration of it, with the exception of a few—mere copyists of Knight—whose flimsy and superficial manner of treating it, evidently shows that they were unable to investigate the subject, or develop its theory; and contenting themselves with iterating his opinions, in an unconnected and ambiguous form, they dismiss it so hastily as to imply that they thought the farthest limit of inquiry had been gained.

But with all due deference to the immense intellect of that great gardener, he did not fully elucidate the question, for he has written nothing with regard to it of any real practical utility to working men; and, excepting a few general observations, and the results of some experiments, the principle remains as vague and ill-defined as he found it after Boerhaave, who was the first to observe its importance.

Wilkinson, in the “Horticultural Transactions,” as quoted by Loudon, gives a clumsy rule for determining the angle; and, curiously enough, endeavors to illustrate it by an example not solved as the rule directs. In the same connection he also says, “The angle contained between the back wall of the forcing-house, and the inclined plane of the glass roof, always equals the sun’s altitude, when his rays fall perpendicularly on that plane, provided that the inclination of the plane to the horizon be at an angle not less than $28^{\circ} 2'$, nor greater than 75° .” Here is an obscure way of telling us that $28^{\circ} 2'$ is the angle of inclination at the summer solstice,

and 75° , or, rather, $74^{\circ} 56'$, the angle at the winter solstice, in the latitude in which he wrote ($51^{\circ} 29'$); whereas the obvious inference, from the unqualified manner in which he puts it, is, that perpendicularity could not take place outside these limits in any latitude.

Johnson, in his "Principles of Gardening," gives another rule, couched in general terms, which is only of limited application. It is therefore an unsafe guide, and calculated to mislead the reader.

And "The Encyclopædia of Gardening" gives such an Ossa-upon-Pelion grouping of authorities and opinions on the subject, that, while the patient industry of the writer excites admiration, the lack of really useful information which so many and varied sources presuppose, cannot but be deplored.

Instructions of this nature, it is reasonable to infer, can hardly fail to be productive of error; and that they have been, no other proof need be required than the number of improperly inclined and ill-adapted roofs to be seen almost everywhere, both here and in Great Britain.

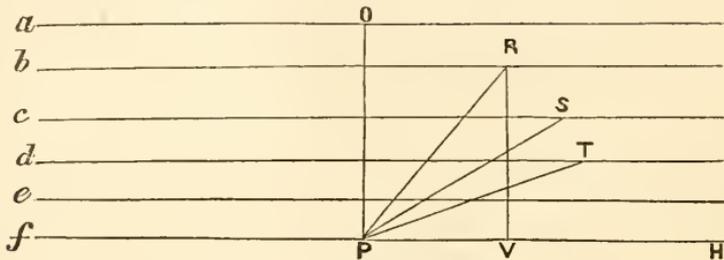
Such being the obscure state of the question as exhibited by our standard authorities, it is hoped that the attempt to evolve it from this obscurity, to place it on a fixed basis, and to render it more intelligible, will not be deemed presumptuous in the writer, who, taking no rule unsupported by science on authority, however great might be the prestige of the name which had established or advanced it, has dared to enter that arena where Knight strode in all the majesty of his mighty and comprehensive mind.

The admission of light is the sole object of transparent roofs; for it is well known that it exerts a powerful influence on the vitality and growth of plants. The green color of leaves, the hue of flowers, and the flavor of fruit depend on it; and these effects must have been observed by man far back in the youth of the world.

When it is considered, according to the experiments of Herschel and Berard, that solar light possesses three distinct powers,—those of heating, illuminating, and effecting chemical combinations and decompositions,—it will be seen how important a part it acts in the economy of plants, and how

necessary it is, that all the light possible be secured to glazed horticultural structures, as, in proportion to its amount, will be the extent of these vivifying powers.

When luminous rays proceed from a very distant body, as the sun, they may be regarded as parallel, and when parallel rays fall upon a plane surface, their illuminating and heating powers vary with the angle they describe with it; the most perfect illumination being produced when they fall perpendicularly upon it.

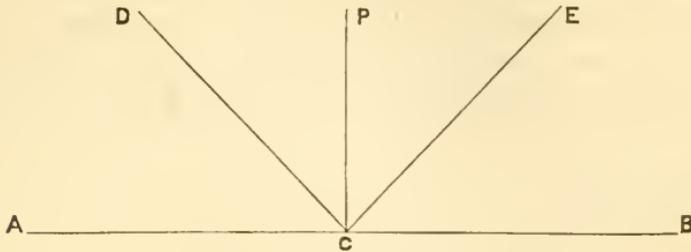


1. ILLUMINATING POWER OF THE SUN'S RAYS.

Let the parallel rays, *a*, *b*, *c*, *d*, *e*, *f*, fall upon a plane surface *OP*, perpendicular to the horizon *fH*, and it is evident they will all aid in illuminating its surface; but if *OP* be inclined successively to *PR*, *PS*, *PT*, but five of the six rays will impinge upon it in the first case, four in the second, three in the third, and in each case as it recedes from the perpendicular and inclines to the horizon it will be proportionally less illuminated. Hence the law in optics, as quoted by Loudon, that the influence of the sun's rays on any surface, both in respect to light and heat, is directly as the sine (*RV*) of the sun's altitude; or, in other words, directly as his perpendicularity to that surface. It is, therefore, evident that the farther the roof reclines from the perpendicular, the fewer direct solar rays will it receive, and the nearer the angle, which the plane of the roof makes with the path of the luminous ray, approaches to a right angle, the more rays will impinge upon it, and consequently the more light and heat will be acquired.

Again, when a ray of light falls upon a plane polished surface capable of reflecting it, it is thrown off again from that surface at an angle equal to that by which it impinges upon it.

Suppose $A B$ to be a smooth polished surface, and a ray of light proceeding in the direction $D C$, to impinge on that surface at C , and to be reflected from it in the direction $C E$. Through the point C , draw $C P$ perpendicular to the surface; then, the angle $P C E$ is called the angle of reflection, and $D C P$ the angle of incidence. Now, it is a law established



2. ANGLES REFLECTING THE SUN'S RAYS.

by the experiments of Bouguer, Arago, Fresnel, and others, that the quantity of light regularly reflected increases with the angle of incidence, and nearly vanishes when that angle becomes 0, or when $D C$, the incident ray coincides with $P C$, or is perpendicular to the plane $A B$. Therefore the intensity of illumination is greatest at any point in a reflecting surface, when the incident ray is perpendicular to that surface.

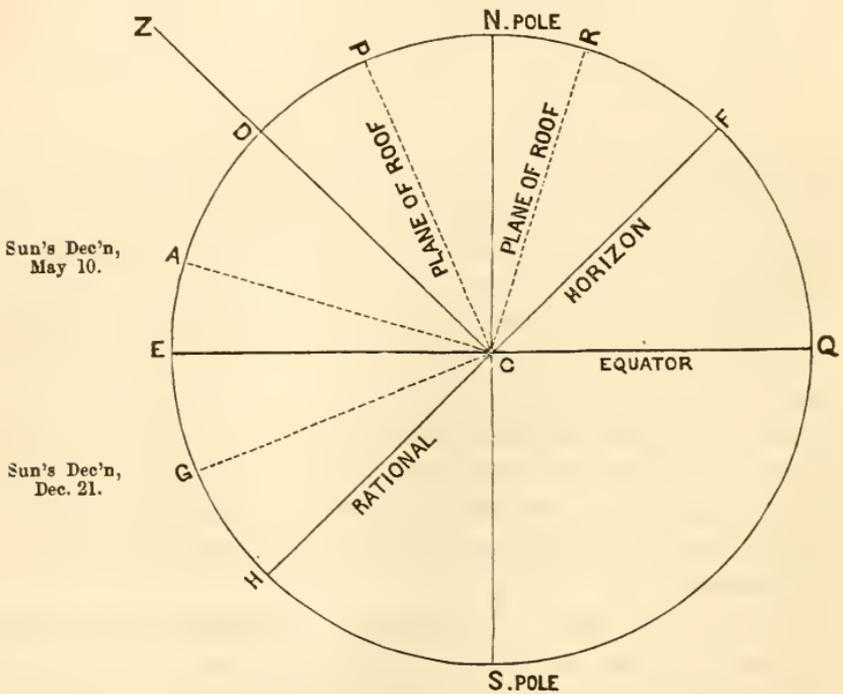
These experiments, though instituted for a very different purpose from that in which they are now employed, namely, to determine the intensity of reflected light, exhibit in a forcible manner the loss sustained by the improper inclination of glass roofs.

Bouguer has given the following numerical relations of incidental to reflected rays at different angles from a surface of glass, the number of incidental rays being supposed to be 1000: Of 1000 rays falling upon such a surface and making an angle of 5° with it, 543 are reflected; 300 when the angle is 15° ; 112 when 30° ; 25 when 60° , or above. Here, then, is another loss, of the rays that impinge on roofs much inclined to the horizon, by their being reflected, or thrown back again into space.

The method of finding that pitch of the roof will now be considered, by which these losses will be obviated, and by

which all the intensity of illumination and heat, possible, will be obtained.

Let *C* be the centre of the earth, *N C S* its axis, then are *N* and *S* its poles; *E Q* its equator; and *D Z*, the prolongation of the terrestrial radius *C D*, the zenith of the station *D*, or of Boston; the arc *E A*, the sun's declination, or his angular distance north of the equator; the dotted line *A C*, the path of a luminous ray; and the dotted line *C R*, the plane of the roof at right angles with *A C*; for, as has been shown, it is in this position that most rays impinge, and are least



3. MODE OF FINDING THE ANGLE OF ROOF.

reflected; and neglecting the size of the earth, and conceiving the observer stationed at its centre, everything may be referred to his rational horizon *H C F*; for, if the planes of both horizons—the rational and sensible—be prolonged in imagination till they reach the region of the sun, although separated throughout their whole length by a semidiameter of the earth, they will, on account of the vast distance (95,000,000 of miles) at which that semidiameter is seen, be confounded

together and undistinguishable from each other in that region, when viewed by an observer on the earth.

Now, from this construction it will be seen that the angles $A C R$, and $D C F$, are right angles, having the angle $D C R$, common to both, which, if taken away, the remaining angles $A C D$, and $R C F$, will be equal; but the angle $A C D$, is the difference between the sun's declination and the latitude; and the angle $R C F$, is that which the plane of the roof makes with the horizon of the observer's station.

Again, suppose the sun to be south of the equator; then the arc $E G$, will be the declination; the dotted line $G C$, the path of a luminous ray; and the dotted line $C P$, the plane of the roof at right angles with $G C$. Here, the angles $G C P$, and $D C F$, are right angles, having the angle $D C P$, common to both; let this be taken away, and the remaining angles $G C D$, and $P C F$, will be equal; but in this case, the angle $G C D$, is equal to the sum of the latitude and declination, and the angle $P C F$, equal to the inclination of the roof.

Setting aside the declination and latitude as data, the required angle may be obtained from the sun's meridian altitude.

Let the angle $H C A$, represent his distance above the horizon, or his meridian altitude; then will the angle $A C D$, be its complement, or what is wanted to make the angle a quadrant, or 90° , which, as above shown, is equal to the angle of inclination $R C F$.

From these simple geometrical considerations, the following general rules are deduced:—

RULE 1.—*If the sun's declination be north of the equator and the given place in the northern hemisphere, subtract the declination from the latitude, and if south of the equator, add it to the latitude; this sum, in the latter case, or that difference, in the former, will be the angle of inclination required.* That is, from the vernal to the autumnal equinox the declination must be subtracted from the latitude, and from the autumnal to the vernal equinox added to it.

The declination for any given day may be found in a nautical almanac; or on an artificial globe as follows: Find the

day of the month on the declination scale, or on the ecliptic. Bring either to the universal meridian, and the degree over it will be the declination.

RULE 2.—*Find the sun's meridian altitude by a quadrant, subtract it from 90° , and the remainder will be the angle of inclination.* The greatest angle of inclination in this latitude ($42^\circ 23'$) will be $65^\circ 50'$, and the least, $18^\circ 56'$.

The application of these rules to practice must, of course, depend altogether on the purpose for which the structure is to be employed. In greenhouses, for instance, devoted specially to the preservation and growth of plants during winter, the solar ray should be perpendicular to the roof about the time of the winter solstice.

Now, the sun's declination on the 21st of December will be $23^\circ 27'$ south, and the latitude of Boston is $42^\circ 23'$ north; therefore, according to Rule 1, $65^\circ 50'$ will be the angle which the plane of the roof should make with the horizon at that season.

Again, to illustrate Rule 2. The sun's meridian altitude on that day will be $24^\circ 10'$; subtract this from 90° , and the remainder will be the angle, as before.

A very convenient method in this case is, to eliminate the $5^\circ 50'$, and consider the angle 60° ; then the inclination will be readily obtained by making the length of the rafter equal to twice the width of the house, which should be the rule generally adopted for lean-to plant houses in this latitude, as, according to Bouguer, the loss by reflection will not be any more than at $65^\circ 50'$. For span roofs the length of the rafter should be equal to the width of the house.

In cold vineries, where the fruit is to be matured by the heat of the sun alone, its rays should be perpendicular to the roof about the 10th of September; for the crop generally begins to change color in August, and ripens about the middle of that month:

Latitude of Boston, $42^\circ 23'$ north.

Sun's declination, September 10th, $4^\circ 51'$ north.

Then $37^\circ 32'$ will be the angle
of inclination in this case.

In vineries where fire-heat is employed, and forcing commences about midwinter, this normal condition should be fulfilled about the 10th of May; for the change of color in the fruit takes place some time before, and begins to ripen about this date :

Latitude of Boston, 42° 23' north.

Sun's declination, May 10th, . 17° 41' north.

For such structures, 24° 42' will be the proper inclination.

Finally, the angle of inclination being given for any place in the northern hemisphere, that for any other place therein may be found as follows :

If the place be south of that for which the angle is given, subtract the difference of latitude between both places from the given angle of inclination, and the remainder will be the angle of inclination for the place required; and if the place be north of that for which the angle is given, add the difference of latitude to it, and the sum will be the angle of inclination for that place.

Further illustration is deemed unnecessary. These rules are so plain and intelligible to any inquirer who will enter seriously into the subject, so easily applied to any particular case, and so readily deduced from the principles laid down, that the writer hopes they cannot be misunderstood. They are therefore respectfully submitted to the perusal of the intelligent gardener, who will doubtless find very little difficulty in their application, whenever, in his practice, an occasion arises.

We are pleased in giving our readers so good an elucidation of the principles of the inclination of glass roofs, as that furnished by our correspondent. For, although Knight and Wilkinson have laid down similar principles, they are only accessible to those who possess the *Transactions* of the London Horticultural Society—a scarce and valuable work. A *résumé*, therefore, of these principles, in the clear manner above given, is a valuable paper to all cultivators.

We differ, however, somewhat from our correspondent, as

regards the slope of greenhouse roofs, which he fixes at $65^{\circ} 50'$ in the latitude of Boston, on the supposition that the sun's rays should strike the roof at nearly right angles December 21st, the winter solstice. Now it appears to us that the period when the sun's rays are most needed in such a structure is in February, or nearly March 1st, when the plants, after a due period of rest, begin to grow and bloom, and require a greater degree of light and heat. This would therefore give a plane of roof of little more than 45° in the latitude of Boston.

There is a serious objection to very steep roofs, such as that of 65° . The stage for plants requires to be so high that they are not seen to advantage, and renders their proper management inconvenient, even allowing it to be the angle securing the greatest amount of the sun's rays. What is sacrificed by reflection is more than made up in other ways, to say nothing of the ill appearance of such roofs.

As regards the angle of roofs for vineries, as given by our correspondent, there is no doubt of the correctness of the principle; but here again arises another objection to such a slope as that of $24^{\circ} 42'$ for early grapes. An angle so flat does not take off the water rapidly enough, and the roof is apt to be leaky. Hence an angle of 30° to 35° has been thought, all things considered, the best.

There is no doubt of the truth of the principles laid down; and all who are about building greenhouses, conservatories, or graperies, should fully understand them, varying them only according to circumstances, their application and fitness in connection with other buildings, &c.—ED.

THE GAZANIA SPLENDENS AND DOUBLE ZINNIA.

BY THE EDITOR.

GAZANIA SPLENDENS.

EVERY plant that adds to the decoration of our summer gardens is an invaluable addition. For although we are rather too partial to bedding plants, and ignore annuals and

perennials, which contribute so much to the beauty of every parterre, it is not to be denied, that a due proportion of the former, with their masses of gay colors, enrich and embellish in a high degree every garden.

But unfortunately most of the popular bedding plants are of two prevailing colors, viz., red in its various shades, lighter or darker, and white. Of blues and yellows there is yet a want, particularly the latter. Saving the Lantanas, which change into pinks and reds, there are few deep orange tints, which are necessary, in due proportion, to make up an harmonious arrangement of colors.

To supply this want, the *Gazania* is especially fitted. Possessing all the requisites of a bedding plant, a free grower, dwarf compact habit, neat foliage and abundant bloom, its golden orange flowers with a black centre are particularly conspicuous and showy; flowering when quite small, and continuing to open its gay florets till late in the autumn, it will rank with the gayest of summer blossoms. Planted in alternate beds, with the deepest blue *Verbenas*, *Salvia patens*, or other blue tinted flowers, it forms a rich contrast, and enlivens a border, which would be otherwise tame in color. For ribbon borders, when they are attempted, no plant we are acquainted with could supply its place.

This beautiful *Gazania*, (FIG. 4,) which we have already briefly noticed, (XXVI. p. 179,) is apparently a hybrid production, between the old *G. rigens*, *pavonia*, or *uniflora*, resembling in its general growth the latter, but differs in its dwarf, compact, close-branching habit. It is at first sub-erect, but becomes decumbent from the weight of its large blossoms, which are from three to four inches in diameter, resembling rich golden-orange *Chrysanthemums*, with gracefully decurved margins, marked at the base of each petal with a black blotch, upon which there is a distinct white spot. It is these combinations of color that produce such a gorgeous effect. The foliage is also unique, being of a silvery hue beneath, which adds to its ornamental aspect.

It is a plant of the easiest culture, not being particular as to soil or aspect, but, like others, thriving best in a rich mellow soil suited to *Verbenas* or *Petunias*. It begins to bloom

in June, and continues until the latest period in autumn. Upon the approach of severe frosts the plants should be potted and wintered in the greenhouse, where, after a due season of rest, they will again open their rich blossoms. It is propagated by cuttings in the usual way.



4. *GAZANIA SPLENDENS.*

As a decorative plant, for vases or pots, it is equally adapted, blooming freely, and not liable to the attacks of insects, which often injure or destroy more tender-foliaged plants. For this reason, and its other fine qualities, it must prove one of the most "brilliant and effective flowers yet introduced."

THE DOUBLE ZINNIA.

The Zinnia, in its many varieties, is one of the most familiar, as it is one of the most showy, annuals. For years and years it has been extensively cultivated, but without any other change than the addition of some new tint, which, in its sportive character, has been obtained in common with other plants. No appearance of anything like a double flower has ever been seen till very recently. Messrs. Vilmorin, the great French



5. DOUBLE ZINNIA.

florists, state, that all their attempts to produce a double variety have been unsuccessful.

Yet the past year magnificent specimens of double Zinnias have been exhibited in London, both from English and French cultivators, which attracted unusual attention, and were of so much merit as to elicit awards of first class certificates from the Floral Committee of the London Horticultural Society.

Singular as it may appear, these double Zinnias are of Eastern origin, the seeds having been first received from the

East Indies, by M. Grazani of Bagnères, France, and subsequently by Messrs. Carter of London. Messrs. Vilmorin saw them with M. Grazani in 1858, and now for the first time they are introduced to the public. How they came to India is at present unknown; but that they are a great acquisition, "not a whit less interesting than that of double Dahlias," is admitted even by Dr. Lindley. A full account of the interesting exhibition of flowers will be found in our last volume, (p. 518.) We have produced a representation of the flower, (FIG. 5.)

The Zinnias are easily produced from seed, and retain their double character. Under good culture they are very double, and their introduction to our gardens, with that of the Japan pinks, marks a new era in their decorative character as distinctive as that of the Dahlia, which has so long been the pride and glory of the autumnal garden.

Gossip of the Month.

AMERICAN INSTITUTE EXHIBITION.—Our correspondent, "Verophilus," who writes in relation to the award at the late Exhibition at the Palace Gardens, is informed that we appreciate his criticism, but think it unnecessary to discuss the subject at this time. Another year may remedy any defects.

THE HON. JOSEPH S. CABOT, whose European Notes in our last volume were so widely read, has returned safe home, delighted with his journey. Want of time has prevented him from giving us further details, but we hope he may yet favor us with some account of his visit to English nurseries, which will lose nothing by delay. We welcome him home, and are glad to hear he has been so well pleased with his tour.

A FASHIONABLE STRAWBERRY.—One of our cultivators, in advertising Wilson's Strawberry, among other reasons why it should be planted, says, "Because it is the most productive, the largest, and finest berry out. In fact, it is the "fashionable" berry.

NEW YORK CENTRAL PARK NOT EXTENDED.—The Central Park Commissioners, at a meeting December 26th, voted to discontinue all further proceedings in taking the extension to the Park from One-Hundred-and-

Sixth to One-Hundred-and-Tenth street, on the ground that the valuations were much larger than was contemplated when they moved to have the extension made, and that they deemed it unwise to make the addition at the price which it now appeared must be paid for the land. A large portion of this land is, it is obvious to all who are acquainted with the ground, very desirable to the Park, and there is a general feeling of regret among the members of the Board that they are compelled to forego the addition. There was but one vote against the discontinuance.—*Tribune*.

The Commissioners have acted wisely in this. No doubt the addition would add greatly to the extent and beauty of the Park, but the cost is altogether too great even for New York, with all its wealth and extravagance. The cost of the extension, about 183 acres, is upwards of \$1,500,000, making a grand total of the whole, when completed, as it has been begun, of upwards of \$20,000,000, being an annual interest of \$1,200,000, besides more than \$500,000, annually, for keeping it in order. As a specimen of the way the money is expended, the surveyors' and other bills connected with the 183 acres, were nearly \$100,000! It is the opinion of competent men that the whole could have been done for *one quarter* of the money.

PREMIUMS FOR NEW FRUITS AND VEGETABLES.—The Massachusetts Horticultural Society, through their respective Committees, have awarded Mr. F. Dana, of Roxbury, a gratuity of \$20, and a silver medal, for the production of his new Seedling Pears; and Mr. J. J. H. Gregory, of Marblehead, a gratuity of \$25, for the introduction of the Hubbard squash. We are glad to see encouragement thus held out to zealous horticulturists for new and valuable productions, and we are sure the Massachusetts Horticultural Society will never overlook meritorious acts of this kind.

AGRICULTURAL LIBRARY ASSOCIATIONS.—We are highly pleased in announcing the success of Mr. John Reynolds, of Concord, Mass., in establishing Agricultural Libraries throughout our State. He has already got up more than *one hundred and fifty* in various towns, and is still engaged in his labors. In the city of Cambridge he has established two of the largest in the State. The influence of these Associations is beyond estimate. Through the medium of valuable books, many of which are too expensive for individuals to possess, our farmers, gardeners, and country gentlemen, become familiar with horticultural and agricultural science, in its present condition, everywhere; and the diffusion of taste consequent upon such information is becoming apparent wherever these Associations have been established. We would advise their formation in every town in the State.

THE CUMBERLAND PEAR OF VAN MONS.—Our explanation respecting this variety in a late number, (Vol. XXVI. p. 508,) seems to have been misunderstood. We stated that it was the same as the Henkel, and accounted for the mistake by supposing Van Mons, or his gardener, had misapplied the label of the scions of our native Cumberland, which were sent him by

the Massachusetts Horticultural Society. The Henkel was raised by Van Mons, and sent to Messrs. Manning & Kenrick in 1834. Many years after, the Cumberland was introduced from Van Mons's collection, and hence we thought as both were raised by him, and he would not be likely to give two names to one pear, the error occurred as above. The Henkel is not a native, as our friend Mr. Berckmans seems to have understood from our notice above.

FIELD NOTES.—Our contemporary, Col. Harris of the Ohio Cultivator, is out with his prospectus of a new folio Journal, to be published weekly, under the above title. His success with the Ohio Cultivator has so enlarged his circle of readers, that he finds it impossible, in the limited space of that semi-monthly Journal, to furnish them with the abundance of good things his head and heart contain. We doubt not it will be a Journal worthy of the Buckeye State, which already has some valuable papers. At the same time the Cultivator will be continued at a reduced price. Hear what the Col says about new subscribers:—

“GREAT PREMIUMS FOR SUBSCRIBERS.—An experience of sixteen years with the Ohio Cultivator has convinced us that the system of offering sensational premiums indulged in by many of our contemporaries is deceptive in character and vicious in practice. We shall put the value into our papers, and make *them* the attraction instead of hiring people to take them by the offer of silly sugar plums. We are down on all shamming, and this practice is becoming one of the greatest shams of the age.”

“That's so,” Col. These Gigantic Gift Newspaper Establishments are mighty institutions.

THE FRUIT GROWERS' SOCIETY OF EASTERN PENNSYLVANIA will hold its Second Annual Meeting in the city of Reading, on the first Wednesday of February, 1861.

THE HEMLOCK SPRUCE.—This is undoubtedly the queen of evergreen trees. Of all the new and rare pines, cypresses, &c., that have been introduced, not one can excel our native hemlock; indeed, few can be compared to it, either in beauty of growth, or general usefulness. To the landscape gardener it is invaluable; no other tree can take its place in rounding off groups and defining outlines. It conveys an impression of finish, when properly disposed, more effectively than any other of our hardy evergreens.—(*Farmer and Gardener.*)

NEW UPRIGHT TOMATO.—Messrs. Vilmorin, the Paris seedmen, are offering for sale seeds of a new upright tomato, which requires no support in its growth. It is said to be entirely different from the kinds previously known. The stem is two feet high, or more, quite upright, and so remarkably stiff as to be strictly self supporting. It branches less than the Common Red, is less leafy, and does not want so much pinching. The leaves are rather curled, much puckered, very firm, and closely placed on the

sturdy branches. Their color is a remarkably deep shining green. It does not bear so freely as the common kind, but its fruit, which is of the same color, is larger, and more regularly formed. In earliness it is intermediate between the Early Red and the Giant Red. It was raised from seed by Grenier, the gardener of M. d. Fleurieux, at a place called the Chateau de Laye, and this variety is therefore called the *Tomato de Laye*.

Massachusetts Horticultural Society.

Saturday, Nov. 3.—An adjourned meeting of the Society was held to-day,—the President in the chair.

The Committee appointed to consider the expediency of publishing a Monthly Journal requested to be discharged.

Benard Rosier, physician to the king of Greece, and B. E. Cotting, were chosen Corresponding Members.

The following members were elected:—C. C. Burr, Wm. Whiting, W. T. Merrifield, R. S. Frost, J. H. W. Page, J. W. Hollis, Nathl. Philips, J. W. Stone, Alex. Dickinson, John G. Wetherell, Jos. M. Williams, John Savage, Jr., E. H. Luke, J. D. Bradlee, Henry Y. Hill.

Adjourned to December 1.

Dec. 1.—An adjourned meeting of the Society was held to-day,—the President in the chair.

Mr. W. H. Spooner, Jr., moved that the Committee, having in charge the subject of the Back Bay Reservation, be requested to mature some plan for the consideration of the Society.

T. P. Lerner, N. R. Childs, Jos. Andrews, and H. L. Hazeltine were elected members.

Adjourned two weeks, to December 15.

Dec. 15.—An adjourned meeting of the Society was held to-day,—the President in the chair.

A handsome painting, representing the Cactus, as it grows in Mexico, was presented to the Society by L. M. Sargent, Esq., and the thanks of the Society were voted for the same.

The Committees on Flowers and on the Library presented their Annual Reports, which were accepted.

C. M. Hovey, from the Committee appointed for that object, made a Report in relation to the Back Bay Reservation, embracing the views of the Committee in relation to the same, and it was voted that the Report be laid upon the table until the quarterly meeting in January.

Hon. M. P. Wilder offered the following Resolutions upon the death of Samuel Walker, prefacing them with some appropriate remarks, in reference to his long association with the Society, his continued services in its behalf, and the deep interest which he felt in its future usefulness and prosperity:—

Resolved, That the Massachusetts Horticultural Society have learned with profound sorrow and regret of the decease of the Hon. Samuel Walker, one of its earliest, most active, and influential members, who for more than thirty years has labored with zeal, energy and well-timed exertions to promote its welfare.

Resolved, That in his death this Society and the country have lost one of the standard-bearers of American horticulture, and that we will ever hold in grateful remembrance his valuable services and his private worth, and will cherish his memory as a public benefactor.

Resolved, That while this bereavement will be long and deeply deplored far beyond the circle of his family, we tender to them our sympathy and affection in this hour of their deep affliction.

Resolved, That the Secretary be requested to transmit to the family of the deceased a copy of the above resolutions, and that they be copied in the papers of the day.

Adjourned one week, to December 22.

Dec. 22.—No business of importance was transacted, and the meeting adjourned to December 29.

Dec. 29.—An adjourned meeting of the Society was held to-day,—the President in the chair.

Messrs. Stickney, Wilder and Austin were appointed a Committee to settle with Mount Auburn Cemetery.

The Committee on Gardening, the Fruit Committee, and the Vegetable Committee, submitted their Annual Reports, which were accepted.

Messrs. C. M. Hovey, Cabot and Austin were appointed a Committee to nominate a Committee of Arrangements for the ensuing year.

Mr. George W. Pratt presented the Society with three volumes of Agassiz's Contributions to the Natural History of the United States, and the volumes hereafter published. The thanks of the Society were voted to Mr. Pratt for his very handsome gift.

The Executive Committee reported an appropriation of the sum of \$3,200, for premiums for 1861.

S. W. Hathaway, G. W. Palmer, Thos. D. Parker, G. B. Upton, and Dr. I. Warren were elected members.

Meeting dissolved.

Horticultural Operations

FOR JANUARY.

FRUIT DEPARTMENT.

DECEMBER was one of the coldest for several years; in the first half, especially severe; the latter, though milder, still cold. There have been but few days in the month when the temperature was as high as 32° at

sunrise. In consequence of this severe weather all out-door work was stopped at once; but the previous month having been favorable, fortunately there was little preparatory work for winter left undone.

At this season nothing of importance can be accomplished in the open air, except in the southern portion of the country, where our remarks can have no application, our operations for April answering to this month in that locality. But indoors there is plenty to occupy the attention of the industrious gardener, especially where there are graperies, forcing-houses, &c. An abundance of preparatory work for spring can now be done, even when there are no other labors to be attended to. Making labels, preparing stakes, and similar operations, will greatly facilitate the work of the summer.

GRAPE VINES, in the earliest houses, will now begin to ripen their fruit, and will need less care, while the grapery or succession-houses will need particular attention. Usually, grapes in these houses commence growing earlier or later in February, according to the temperature. If not already pruned this should at once be completed, and the vines cleaned and washed so as to destroy every insect. Tie up to the rafters as soon as the buds begin to swell, and syringe often till they are well broken. See that the border is well protected, and begin with a moderate temperature, 45° to 55°.

SCIONS OF FRUIT TREES may be cut in good weather, and preserved in earth or sand in the cellar.

PEACH IN POTS, having had the protection of a cellar or warm shed, may now be brought into the grapery, forcing-house, or greenhouse. Vines may be managed in the same way, as also figs.

FLOWER DEPARTMENT.

The conservatory or greenhouse, to be fully appreciated, should always preserve an air of neatness, which, though not indispensable as regards the vigor of the plants, is especially so as regards the enjoyment of their beauties. However so healthy, vigorous and flourishing each plant may be, if all is not arranged in good taste, and kept in an orderly manner, the gayest blossoms, displayed in abundance, fail to satisfy the most ordinary lover of fine plants. The labors of the best gardener, without order and neatness, are often less estimated than those of ordinary capacity, with a good share of each.

January, therefore, should find the skilful man with his houses in perfect order, the pots washed, the plants neatly staked up, the climbers pruned into shape, and a rich assemblage of beautiful blossoms; with a stock to succeed those soon passing out of flower. He will also improve all the spare time to prepare for spring, that the labor of three months may not be hurried into one.

PELARGONIUMS, of which there is scarcely a spring-flowering plant that surpasses it in attractiveness, will soon be objects of special attention, if handsome specimens, full of flowers, are the object. Keep them cool and rather dry for a while, pinching off all vigorous shoots, tying out the

branches so as to form broad heads. Air abundantly, and keep as near the glass as the means will allow. The object should be to get a good foundation, on which all future growth depends.

CINERARIAS are very ornamental when rightly treated. Shift at once, for the last time, and water moderately, keeping the plants stocky and dwarf, so as to throw up an abundance of vigorous flowering stems. Fumigate for the green fly.

AZALEAS. These will soon begin to grow, unless pains have been taken to keep them very cool. Commence at once to tie the plants into shape, if not already done; then move them to a rather warm situation, well exposed to the light, where they can be freely syringed. Water rather sparingly for a time.

BEGONIAS, which have been dried off, may now be divided and repotted, placing them in the very warmest part of the house. Water very sparingly till they begin to grow.

AMARYLLISES should be repotted as soon as they show signs of growing.

CAMELLIAS should be more freely watered, and syringed occasionally. Put in cuttings if wanted, and inarch or graft. Young stock may be repotted.

CALCEOLARIAS may be treated as we have advised for Cinerarias.

ORCHIDS should be kept rather dry and cool at this season.

FERNS will soon begin to grow, and may be repotted.

CYCLAMENS should be more freely watered, and, if they require it, repotted.

FUCHSIAS, intended for specimens, should be encouraged by a shift into larger pots.

SCARLET GERANIUMS may now be shook out of the old soil and repotted.

TROPEOLUMS, of the tuberous kinds, should be repotted.

GLADIOLUS, of the ramosus tribe, should now be potted and placed in a cool place till they begin to grow.

PANSY SEEDS may be sown for a spring stock.

SEEDS of many kinds of plants, for spring or summer blooming, may now be planted.

VERBENAS may be propagated from cuttings.

RHODODENDRON SEEDS may be sown.

ROSES, now blooming freely, should be watered with liquid manure.

MARANTAS, **DRACÆNAS**, and similar plants, that have been kept rather dry, should now have a warm situation, and be freely watered.

HEATHS should be kept as cool as possible, and have an airy place and abundance of light.

PETUNIAS should be repotted.

CALADIUMS should now be shook out of the old soil, and repotted in fresh earth, composed of decayed leaves, peat, fibrous loam and sand. Water sparingly, and keep in a warm place.

INSECTS should be looked after, fumigating with tobacco for the green fly, and with sulphur for the red spider.

THE HALF HARDY CONIFERS AND EVERGREENS.

EVERY tree that adds to the embellishment of our gardens possesses a greater or less value according to its capability of enduring our severe climate unharmed. If perfectly hardy, the simple fact at once conveys the idea of inattention, neglect, little danger of loss, and, what is all-important, no expense attending its cultivation,—it will take care of itself. Hence the first and natural inquiry in regard to every new tree, Is it hardy—will it stand our cold winters? If so, it will be an acquisition; if not, it is worthless. These are the answers of too many, though, we are glad to add, not all the lovers of beautiful trees. A real love of beautiful forms and elegant foliage has taken too strong hold of many of our American planters to resist the culture of half hardy shrubs and trees, which later years have introduced from the mountainous regions of temperate climes, no matter what the expense, or however so great the labor attending their growth. We shall not attempt to deny the additional value which every beautiful tree possesses on the score of its entire hardiness; but that a slight susceptibility to a hard touch of jack frost should place it out of the pale of cultivation, simply because it needs the protecting hand of man, we must emphatically object to. What we can have at but little or no cost, is generally lightly appreciated; while that which “eternal vigilance” only enables us to possess is intrinsically beyond price.

We see this in our general taste for Evergreen or Coniferous trees. What the British planter considers one of his greatest treasures, Americans look upon as almost a cumberer of the ground. A magnificent specimen of our common White, or Weymouth pine, as it is called in England, is the pride and glory of the English landscape, whilst it is here spurned as a common vagrant of our woods. What the English lover of trees groups around his pleasure ground,—the Scotch and Austrian pines,—we reject because they look too much like our common pines. We are constantly seeking for something new, some-

thing recherche, and when we have found them in the rare Deodar cedar, the *Pinus patula*, or some other elegant tree, we reject them because care and protection are needed to make them an ornament to our lawns; so that between the common trees which look too much like our pine woods, and the rare trees which need some protection, we are reduced to the scanty supply of some dozen or so of kinds, that are duplicated and re-duplicated around our suburban houses, about our pleasure grounds, and upon our lawns, till the whole is a monotonous display of similar vegetation. By this we do not mean to deny the value of every coniferous tree. Far from it; they each and all have their value and importance. An attempt at variety where there is not room to display it, would be insulting to good taste. In limited places, a few Norway spruces, a few arbor vitæ, and a few pines are all that need be planted. But in grounds of extent, this is all reversed. Variety judiciously introduced, not promiscuously scattered about, enhances the picturesque effect, and adds to the grandeur of every plantation. It is well and proper too that the trees for such purposes should be hardy.

But with the increasing taste for garden scenery there is another description of embellishment, where the bristling pines, the rugged cedars, the soldierly arbor vitæ, and the stately spruces can only be introduced sparingly; where their places must give way to more delicate and slender forms, more graceful and airy foliage, more verdant or emerald tints. This is around the lawn, in the near vicinity of the house, or surrounding the flower garden. Flowers and flowering plants, with few exceptions, or only when grouped in beds of various patterns in one harmonious whole, are out of place, and it is here that the half hardy evergreens fill a gap, so necessary to the full development of the scene. Sunk in large pots, with their beautiful foliage reclining on the verdant turf, or standing in vases at prominent points, they catch the eye, and change the common character of the scenery to one of enchanting beauty. What hardy coniferous tree possesses any of the habits peculiar to the Deodar cedar—and how unlike them the *Cryptomeria japonica*, or the *Araucaria imbricata*! What a fountain of gushing foliage is the *Pinus patula*;

and if it should not prove hardy, (which we hope it may,) where shall we find anything so truly lovely as the Cupressus Lawsoniana, the queen of coniferous trees? All these and dozens more possess a distinctness and a beauty which render them preëminently the ornaments of the lawn and winter garden, where the latter may, as we doubt not it will, be attempted. So beautiful, so desirable, and, after all, so little care and trouble are they, let us devote a few words to their treatment, for the objects we have named.

In doing this we shall but be reiterating what we quoted in our last volume from the excellent Supplement to Downing's Landscape Gardening, by H. W. Sargent, Esq. Yet, at the risk of doing so, we shall go over it again.

Nearly all the half hardy trees we have alluded to are natives of the mountainous regions of Mexico, South America, and Asia, growing at elevations where snows frequently fall, but where the thermometer rarely sinks below 20°. They will therefore bear a moderate frost with impunity, whilst zero weather would be fatal to them; consequently they are not, excepting a few of them, hardy enough to endure the winters north of Washington with any degree of certainty, even with moderate protection. Mr. Sargent succeeds with several, but when one of our severe winters sets in, they are terribly cut up, and their real beauty destroyed beyond recovery. But this is easily obviated with a little ingenuity. All they require is a place where the temperature will not fall below 20°. Mr. W. Reid, nurseryman of New Jersey, who possesses a fine collection of conifers, and who is very successful in their culture, has long protected his half hardy kinds in winter, lifting every plant on the approach of cold, and planting them out again in spring. The effect of this annual transplanting is to form eventually a ball of roots, by which they do not suffer in the removal, but put forth with a vigor unimpaired. They are either planted in beds or in parterres, where they form conspicuous objects of the grounds.

The plan of protection is as follows. Select a dry and airy position, and dig out a pit six or eight feet wide, and from two to eight feet deep, according to the nature of the subsoil, which should be *dry* or thoroughly *drained*, and as long as required

for a greater or less number of plants; board or plank up the sides to prevent the caving in of the earth, and fit the top with a frame, to be covered with boards or shutters in winter. Nothing more is needed. As soon as cool weather sets in, say in November, take up the trees carefully, merely shaking off the loose earth, and place them at one end of the frame, selecting the dwarfest, banking up with earth to cover the roots. The next row may be taller, and laid in a slanting direction over the first; the next row may still be larger, till the last row, when plants may be put in ten to twenty feet high, in a frame only four feet deep. The frame being filled, shade from hot sun, and, as soon as cold, frosty weather occurs, cover the roots and branches with six or eight inches of dry leaves, and put on the boards or shutters so as to keep out all rain and snow. Here they will safely remain till spring, when they may be taken out and planted for the summer. This, of course, is the cheapest way of effecting the object. When expense is no great object, a larger house could be erected and properly prepared for their safe keeping. But a frame will be amply sufficient even for trees fifteen feet high.

H. H. Hunnewell, Esq., of West Needham, who has a large collection of the finest coniferous trees, has erected a house for wintering them, and other plants, such as the half hardy Yuccas, Agaves, Palms, &c. &c. All who have seen his Italian garden, know how much these add to its embellishment in summer; in fact, without them it would be but an architectural object.

Such a frame as we have here described is also a safe asylum for the half hardy Rhododendrons, some of which are far richer colored than the strictly hardy sorts; the Portugal laurel and Bay trees, with the rich foliage of the Orange, the noble Magnolia grandiflora, and the evergreen shrubs. After one or two removals, even such as naturally have long roots will form compact balls, that will scarcely retard their growth by change. Enough has been said to show how useful such frames are, and how much of beauty lies in store for all who will try the experiment.

Our New England climate is fickle, changeable, and rough. Had we but the temperature of Virginia, how glorious would be

our gardens! Every tree, shrub and plant that now enriches English gardens, the congregated treasures of the world, would flourish with equal or greater success; but if we have not, as we cannot have, that, we have still the skill and the means to master great obstacles, and what milder climes only afford on an extended scale, may be enjoyed in our ice-bound region in a smaller way, by the aid of the winter garden. Here these trees will retain their summer verdure, and enable us to rob winter of its dreary aspect.

CLASSIFICATION OF WOOD SCENERY.

BY WILSON FLAGG.

THE most obvious and natural division of wood, as a part of landscape, is that of evergreen and deciduous kinds, because the two differ not only in the habit of continuous verdure on the one part, and of leafless hybernation on the other, but also in the general hues of their foliage, and in the forms and outlines of the trees embraced in the two divisions. We should miss one of the most grateful features of a northern winter landscape if the coniferous evergreens were absent from it; and sad and sombre as they appear in the spring, when the deciduous trees are putting forth their light green leaves in lively contrast among their darker masses, we still set a high value upon them, regarding them as indispensable to the perfection of winter scenery, and as contributing more than other trees to our comfort in cold and tempestuous weather, by protecting us from the wind and storm.

On the estate of George Ellis, Esq., in Ballard Vale, Andover, the advantages of an evergreen wood, in exactly the right situation for comfort, protection, and the improvement of landscape, are pleasantly exemplified. His farm comprises a broad tract of table land, perfectly level—and his dwelling-house is on the brow of this level, just as it begins to descend into the valley of the Shawsheen. A beautiful pine wood, of natural growth, covers the remainder of the slope, spreading out upon the level above it, all round the north side of the

farm, extending from the house, in an easterly direction, about two furlongs, and forming a northern boundary unsurpassed in natural beauty, and a bulwark that defends the whole farm from the force of the north winds. It forms likewise a comfortable promenade for the inmates of the family, during any of the coldest days of winter, when the sun is out, pouring his warm rays directly into the shelter of these noble pines. This wood is the most important natural ornament of the farm, and gives variety to the scenery not often seen upon a level. Mr. Ellis is a gentleman of excellent attainments, who knows how to appreciate whatever is valuable in landscape, and to distinguish between the false and the true in rural ornamentation. Our New England farmers, on the other hand, whose general system of farm management I am not disposed to censure, have seldom been provident enough to preserve these natural bulwarks for their farms. But the public is becoming gradually informed that groves and belts of wood are a great protection to farm crops—to orchards as well as to tillage—and that they improve the beauty of the landscape no more than they increase the value of the farm.

Deciduous woods, though inferior to evergreens as natural bulwarks, are more agreeable objects in village scenery, because they are more easy and flowing in the character of their foliage and branches, and present a greater variety in their hues and general appearance, from season to season. Deciduous trees always form agreeable consonances in an assemblage of any number of species—no single individual of normal shape seeming to be out of character. Though certain species approach to the pyramidal form, they are never so stiff or so prim as to make a disagreeable composition when mingled with the round-headed trees. The stiff, spiry forms of the fir, the spruce, and their like, with the exception of the pines, on the contrary, blend very inharmoniously with the general wood scenery of our villages. The broad-spreading evergreens, like the white and the pitch pines, are greatly preferable to any of their allied species, when standing in a wood, or in belts and groups, or by the way-side.

There are other divisions of wood scenery founded upon situation. A wood in a valley between two hills is very

different, in its effect, from one on the hills with an open pastoral meadow between them. The latter was called by Whately a "hanging wood," because it seems to overhang the valley that adjoins it. This produces contrasts of a very agreeable description, by lifting its summits into the sunshine, while it deepens the darkness of the valleys by its shadows. Wood on steep declivities is exceedingly attractive, especially when an occasional opening reveals the precipitous character of the ground, and shows the difficulties which the trees have overcome, under circumstances so adverse to their growth. Some of our pleasure comes also from the evident utility of such a wood; for we see at once that a rocky steep could not be occupied by any other kind of vegetation of equal service to man or brute, and that without the trees the ground would be dangerous and difficult to the person who should attempt to climb it. The trees cover with verdure a space which would otherwise be disagreeably bald, and they yield the frowning rocks an expression of cheerfulness and beauty. They make the barren rocks teem with products for the protection and sustenance of living creatures; and thousands of birds and small quadrupeds, which must, without this shelter, have never come into existence, are cherished in their recesses. The forest in these situations is likewise productive of valuable materials for the fertilization of the valleys below, and will keep in thriving condition a space of meadow at the foot of it, equalling the area of the slope.

It is from these considerations that I always feel a deep sense of regret when I see the wood entirely removed from one of these steeps, where wood only can be made profitable to man or to any living creature. On a level or an undulating plain, a wood, after being cut down, will immediately spring up anew; but on a steep, rocky declivity, the woodman should never make a "clean sweep" of the timber. He should select a few trees for occasional removal, taking care that the rising growth should keep even pace with the progress of the axe. If the surface in such places be left bare, the torrents in rainy and thawing weather, that rush forcibly down the steep, will be fatal to all the young trees, by laying bare their roots in some cases and overwhelming them with

rubbish in others. The slope, indeed, would soon be deprived of its thin coating of soil, which had accumulated under its ancient growth of wood, and nothing could grow upon it afterwards except a few lichens and dwarfish shrubs in the crevices of the rocks. The removal of a wood from a rocky steep occasions a loss to the public which is not likely ever again to be restored.

Some legal measures ought, therefore, to be used to protect the wood on such declivities,—not by forbidding the owner to use it as he pleases; not by infringing upon his right of property,—but by exempting from taxation all wood growing upon steeps, and other places where the continuance of it would be advantageous to the public, while it is valuable to the owner only in the shape of fuel. The owner would not then be tempted to cut it down, to avoid the tax which is levied upon it. A citizen should never be tempted by injudicious taxation of this kind to destroy anything that is particularly valuable to the public; but I will leave this subject for future consideration, as it is of sufficient breadth and importance to deserve not only that an essay but a volume should be devoted to it. No subject has been so injudiciously managed as the taxation of woodland.

Writers in general make a distinction between wild-wood and open-grove,—the former term being applied to wood that is not divested of its undergrowth, the other to wood that is cleared of this obstruction. The most of our artificial plantations are open groves; for in this country there has not yet existed a necessity for making extensive plantations of timber. An open grove is preferable to a wild-wood, if it is to be used for a pasture or a pleasure-ground; but the wild-wood is a more picturesque and a more agreeable feature of landscape. The painter finds in it an endless variety of grouping and outline, for the exercise of his art, and the naturalist discovers in its interior, and in its glens and hollows, thousands of plants which culture eradicates from the soil, and animals that can find neither security nor sustenance in an open grove. It is these associations, no less than the greater variety of picturesque grouping in a natural wood, that yield it this superior interest.

There is another peculiar feature of wood scenery in New England, that requires some notice here, as characteristic of rural landscapes in the northern States of America. I allude to those irregular rows of timber trees that skirt the fields and by-ways in our country villages, apart from the town. Here nature has preserved on our farms an important growth of wood, which the taste or good sense of the inhabitants would not probably have supplied. In too many instances our farmers have been tempted, by the want of a spacious wood-lot, to strip the land of its valuable groups of trees; for taste and consideration have seldom preserved a tree, when avarice has prompted the owner to destroy it. This sort of devastation is most apparent on those farms which have been leased to tenants who felt no interest in the preservation of their valuable features.

This border growth of wood forms, in some cases, a natural belt around the divisions of the farm, and making amends, in some degree, for the absence of more compact groves, which ought to have been saved for its shelter and ornament. Artificial belts are very convenient around an estate, to guard it from the winds, and to promote a pleasant seclusion within; but they are seldom cheerful objects to be seen from the road. They shut out desirable prospects from our view, and commonly present an uncouth front against the road-side, divided as they usually are from the road by a high fence or an ugly, formal hedgerow. If one surrounds his lands with a belt of wood, and means that it shall add any beauty to the prospect, he should not permit these incumbrances on the outside of it, but train it so as to resemble a natural wood, and should create seclusion within it by planting it with an undergrowth of indigenous shrubs. The imagination of the traveller might be excited by this natural barrier of trees to fancy a little paradise within; but a high fence would place such a damper upon this faculty, that disappointment would drown all poetic reveries.

There is another form of wood, consisting of rows and groups of trees and shrubbery skirting a small river, and indicating its course, through the half cultivated plain, by their embowering verdure. Our farmers have encouraged these

growths, because they protect the river banks from the washing of the stream, during a period of overflow. When a small river is divested of this embroidery, it is sadly wanting in attractions, though occasional openings are greatly conducive to cheerfulness and variety of expression. River vistas are formed by such wood, when the river pursues a straight course through it, surpassing almost anything else in natural scenery. Such a vista may be seen from the bridge that crosses the Shawsheen in Andover, just at the south end of Indian Ridge. Here we obtain a view of this incomparably beautiful stream, through a vista of oaks and maples and an undergrowth of alders. In my early days I was never tired of visiting this spot, especially in June or in October, or even in winter, while the trees were robed with crystals of ice, or in a plumage of snow, when the river seemed to be flowing through the very temple of the Naiads.

There are some of our readers who question the profitable-ness of discussions like that which has occupied my present essay; but they ought to consider that neither the culture nor the ornamentation of the ground can be pursued with the best advantage, unless they be founded on just ideas of nature as well as of art. I speak but little of art, because art is well understood both by the ignorant and the educated. I say a great deal of nature, because nature is not understood; the uneducated know nothing of it, and the learned have confined their studies of nature to technical and scientific speculations. Between the *scientific* and the *practical*, there is a middle ground, neglected by the learned and despised by the ignorant, and not appreciated by the public in general. It is this middle ground which I have endeavored, in the most of my communications, to elucidate. It is a field which has been almost entirely neglected; but it embraces topics of the greatest importance, compared with which the mere embellishment of suburban residences sinks into insignificance.

COGSWELL AND OHIO NONPAREIL APPLES.

BY C. DOWNING, NEWBURGH, N. Y.

WHEN at the Massachusetts Horticultural Society's Exhibition in September last, the Cogswell and Ohio Nonpareil apples were on exhibition, and yourself, and I think others, decided they were the same; also on former occasions you believed them to be identical; but not being satisfied, and having heard the two kinds were growing near Cleveland, Ohio, I requested Dr. E. Taylor of that place to send me specimens of both sorts from the same locality, which he kindly did;—also Samuel Myers of Salem and S. B. Marshall of Massillon, Ohio, both sent me specimens of Ohio or Myers Nonpareil, and after a close examination I have come to the conclusion that they are two distinct varieties, although in general appearance they considerably resemble each other.

The Ohio Nonpareil has a longer and slenderer stem, a larger basin, calyx larger and more open, and the skin of a finer texture and brighter color. It also ripens much earlier, commencing, Mr. Myers says, about the first of October, and continuing in use till the last of November; while the Cogswell is in use from December to March. The growth is also distinct, the Cogswell being a vigorous, upright grower, and the Ohio Nonpareil, Mr. Myers says, "makes a beautiful, vigorous growth, forming a low, spreading top; a good bearer, but not prolific; fruit always fair, and esteemed a superior apple." I have the two sorts grafted upon the same tree, but they have not yet fruited. The young wood of the Ohio Nonpareil is of a brighter color and more distinct specks, and the growth is much more horizontal than the Cogswell.

Its origin and history appear not to be fully known. Mr. Myers says, "we never could obtain any reliable information about it. At one time it was thought to be a seedling; then it was said to have been introduced from Pennsylvania. We found it in New Lisbon in 1833, and it was then called Rusty Core—afterward Nonpareil, next Ohio Nonpareil, then Myers' Nonpareil." Cattell apple, of Pennsylvania, is said to be the same. If any friend from that State is acquainted with the

Cattell apple they will do us a favor to give the history of it to the public.

In one of the late volumes of your Magazine you gave it as your opinion that "White Winter Pearmain" of the West, and "Winter Harvey," were identical; but in my examinations the past year or two, I find them to be distinct, both in fruit, young wood, and growth. "Winter Pippin of Vermont," and "Winter Harvey," will probably prove to be the same.

I do not agree with you in your remarks respecting the Delaware grape, in the last number of your Magazine, page 6, where you say, "as a table grape it is too small, and we do not believe all the praise and all the certificates of its excellence will make it *the* popular grape." Now I differ with you, and believe it will become a popular sort, especially with the ladies, as a dessert fruit for parties, &c., because, when large bunches of grapes or large fruit of any kind is handed around, scarcely any one takes it; but present them with small, beautiful bunches of Delaware or Rebecca grapes, Seckel pears, or Lady apples, and but few will refuse.

We are pleased to have the opinion of one so well informed as Mr. Downing in pomological matters upon disputed questions of this kind. We are aware that we expose ourselves to criticism in expressing an opinion as regards the identity of fruits long supposed to be distinct; but as our object is to serve the science of Pomology rather than any egotistical object, we freely state them when circumstances combine to bring us to that conclusion. As regards the Cogswell apple, we may be in error, though we are not yet fully satisfied. It is not many years since the late Mr. A. J. Downing described the Putnam Russet as a new native apple, which we strongly denied, but which he reaffirmed to be distinct. Yet, after a time, he was convinced of his error. It was so with the White Bellflower, which Mr. D. described as a new apple, but which we pronounced identical with the Ortle: yet this was not admitted until the revised edition of his brother's work appeared by our correspondent. Apples, particularly, vary so much that it is only by careful examination of numer-

ous specimens, or a comparison of the wood and foliage and habit of growth of the tree that the difference can be detected. Two varieties like the Shiawasse Beauty and Fameuse may resemble each other so closely as to have one description answer for both, and yet be unlike. So it might be with the Cogswell and Nonpareil. We shall await further information, and gladly announce the result when fully ascertained.

Two or three years ago we took up this subject, and began the preparation of an article in relation to it, which we laid aside for additional information, and make use of a part of it now. Our remark in regard to the identity of the two, attracted the attention of Mr. Bateham, the editor of the *Ohio Cultivator*. He stated that he believed we were correct. He had compared the descriptions and engravings of the two, and pronounced the "resemblance so close as to render their identity quite probable." We then turned to Elliott's Fruit Grower's Guide, where he not only describes but figures the Myers Nonpareil, and his engraving is a fac-simile of the Cogswell, as figured by us, (Vol. XV., p. 252.) The description, though very brief and incomplete so far as it goes, is identical. Here are the two:—

MYERS NONPAREIL.—*Elliott.*

Fruit large, roundish, flattened; red and yellow marbled and splashed; stem medium; cavity regular; basin not deep; flesh yellowish white, tender, juicy, subacid. Ripe October to December.

COGSWELL.—*Mag. of Hort.*

Fruit large, roundish oblate, flattened; skin deep yellow; covered with splashes, stripes, and dots of red; stem medium, cavity regular, basin shallow; flesh yellowish, juicy, with an agreeable mixture of sweet and acid. Ripe October to February.

But upon now looking up the subject again, we find Mr. Elliott makes the Ohio Nonpareil a synonym of the Gravenstein. How is this? Mr. Downing says the Ohio and Myers are the same. Was not Mr. Elliott right in the latter case? We can safely assert that specimens of the Gravenstein are so much like the Cogswell that few could detect the difference. We confess we cannot reconcile these discrepancies.

And how does it happen that an apple, carried to Ohio by the Putnams years ago, and disseminated widely throughout the State, should be unknown to Mr. Elliott, for in the Appendix to his work he mentions the Cogswell among a few

other "new fruits introduced and described in the horticultural journals." Certainly it could not be new! hundreds or thousands of trees were growing in the State, and it seems strange that it should have escaped his attention. We are therefore induced to think that in time the name became lost, and it has since been re-introduced as the Nonpareil. Will Mr. Downing send to the Putnams and procure specimens for examination. This will aid in coming to a correct conclusion.

Let our position be understood. We suggested that the Ohio Nonpareil, as described by Dr. Kirtland, *might* be the Cogswell; and in 1856, specimens of the Nonpareil, exhibited at the Fair of the U. S. Agricultural Society, we stated were *identical* with the Cogswell. Now we do not know what the Nonpareil of Ohio may be—perhaps it is distinct. Of this we have no knowledge whatever, except that given by Mr. Downing. The question is, whether the Ohio Nonpareil, which we saw in Philadelphia, is the same as that of Ohio. If not, then all this discussion has reference to other facts. At any rate, we are glad to find Mr. Downing interested in the matter, and would like to see it cleared up.

As regards the White Winter Pearmain, we do not recollect that we have ever expressed any opinion about it, though we may have done so. But we did state ten years ago, (Vol. XVI., p. 75), that the Winter Pippin of Vermont was the same as the Winter Harvey.

Our remarks upon the Delaware grape were not intended to dispute the popularity of this variety with the ladies, but its general popularity as a cultivated fruit. We have had some experience in the culture and sale of foreign grapes, and we know no reason why the rule with the one does not hold good with the other. And we do know this; that the finest Red Chasselas grapes, which Mr. Downing will not say are inferior to the Delaware, will not sell nor be eaten in preference to Black Hamburgs. If he does doubt it, let him try at least the New York market. Can Mr. Downing be in earnest in making the test of a popular fruit its choice by the ladies? We think not. Our idea of a popular fruit is, one that is universally sought after and cultivated for its combination of excellences, and we are yet to learn whether the little Dela-

ware will stand this test with the Concord, or Union Village, or even Isabella, where the two latter will mature.

POMOLOGICAL GOSSIP.

ARE ALL NEW FRUITS VALUABLE?—The Farmer and Gardener, in a notice of the Vicomtesse de Hericart strawberry, makes some remarks, no doubt with good intentions, but which we cannot subscribe to. After speaking of the good qualities of the above strawberry, as raised by the writer, he says, there can be no question about the fact that the many conflicting statements which are promulgated with regard to the merits of fruits are more from the influencing causes of climate and soil than from any capriciousness, or incapacity on the part of the cultivators, and “it is to be hoped that the time will soon arrive when pomologists will recognize these truths, and refrain from the prevailing system of attempting to establish their own superiority of knowledge simply by depreciating the experience of others, whose opinions are equally entitled to respect.” We inquire, is this so?

We do not hesitate to say no. If such were the fact it would long ago have been established. We venture to assert that no amount of condemnation could have driven out of existence the hundreds of seedlings which have been brought to notice, had they possessed in reality one half of the merits accorded to them by certificates of parties who were incapable of forming an opinion in the matter. We might instance hundreds of fruits that have, without any doubt, under certain circumstances, shown great merit, but which never did so a second time. As the strawberry has been mentioned, take that fruit. Why, Keens' Seedling and British Queen have been the only popular sorts in Great Britain for thirty years, and yet a hundred kinds were described in the London Horticultural Society's old catalogue. So too in our own country; up to 1856, only four kinds out of more than two hundred, after a trial of twenty years, were retained in the list of the American Pomological Society, as worthy of gen-

eral cultivation. A fruit that succeeds only under certain conditions of culture, good as it may be under those conditions, is not to be recommended, at least by those who are to advise the public, and the hue and cry that this is done merely to establish a "superiority of knowledge" and depreciate others, is not true. We believe that the editor of every horticultural paper has a duty to perform, and if the public cannot look to him with some degree of confidence for an opinion, the sooner he vacates his place the better. We are tired of hearing these insinuations against honest convictions of truth.

THE CONCORD GRAPE.—A writer in the *Farmer and Gardener*, who seems to know what he is talking about, thus speaks of this fine grape, which corresponds so nearly with our own opinion, already expressed, at p. 62, that we make no apology for giving his remarks a place here :—

"Among other things of late, the Delaware grape seems to have been lifted up to the seventh heaven, (if we dare use the expression,) by those either directly or indirectly pecuniarily interested in it. That it is a first-rate grape, no one will undertake to deny, it being hardy, and tolerably prolific also, but it is difficult of propagation, slow in its growth at first, and is yet too new and not sufficiently tried to warrant a person in planting largely of it, when he has to pay from three to five dollars per plant, which seems to be the average price. Now please allow me to say, that *five out of six*, who visit at my grounds in grape-ripening season, (and they are not a few, nor are they all novices,) would sooner eat a Concord than a Delaware, and would prefer a vine of it rather than a Delaware at the same price.

"And I would not be afraid to wager high, that in the Philadelphia market, if Delaware and Concord grapes, side by side, were offered for sale, at the same price per pound, the Concords would sell the most readily; and further, that many intelligent persons, whose tastes we would have no right to call in question, would prefer the latter. The Delaware may do for fashionable parties, where to eat a few berries at a time is considered polite, but the robust, healthy, and exercising part of the community like something more palatable to go upon. Give us a few bunches of Concord that will

weigh nearly a pound each. Oh! what a luxury!! But the little Delaware is entirely too refined for a real fruit-eater; refined, I say, because it is too scarce. Let any one try; plant a Concord and a Delaware vine side by side, of equal size. For the former he may pay fifty cents, for the latter three dollars. Treat them alike, and see if, in the next five years, he don't pick four pounds of Concord for every one pound of the Delaware.

There is no telling how vulgar I may be considered in regard to taste, when this is read by some of the "elite;" but this one thing is certain, that the Concord with me the past season was superior to that of any season previous, being almost entirely free from pulp. An intelligent man, and one, too, of scientific attainments, who spent a considerable part of his time in tropical regions, and who had enjoyed the luscious fruits of those latitudes, pronounced the Concord the best of fifteen varieties, which we tasted, although both the Diana and Delaware were among them."

Last summer I saw the Delaware mildew badly in several places. And a friend of mine, who I know paid four hundred dollars for one hundred vines of that sort, two years since, tells me that he is considerably disappointed in them.

Tell me of a man who has been disappointed in the Concord? I have yet to hear the first murmur of complaint, or see one in print. It will grow and produce fine fruit, where a Delaware would only 'grow beautifully less,' until it would be no more."

NEW FRUITS IN OHIO.—Our correspondent, Dr. Kirtland, writes us that the "fine pear orchards around Cleveland are rapidly falling before the fire blight," which we regret to learn is so fatal. He also informs us that several new varieties of fruit have appeared in that vicinity, as follows:—

THE STURTEVANT PEACH—a seedling, produced by E. T. Sturtevant, Esq., of Cleveland. It is valuable for its beauty, size, and fine qualities for eating.

HALE'S EARLY PEACH.—This was introduced by Hale and Jewett, nurserymen of Summit County, O. Last summer it ripened in my grounds two weeks earlier than any other good

peach, and was equal, in size and flavor, to Morris's Red Rareripe.

CUYAHOGA GRAPE.—A seedling, probably from the common Fox grape. The fruit is delicate and fine-flavored, at the same time the vine is as hardy as its parent stock. It is a valuable acquisition for northern climates, and will succeed wherever the Concord will sustain itself.—Very truly yours, J. P. KIRTLAND, Cleveland, O.”

NEW PEARS, WHICH PROMISE WELL.—The Committee of the Western New York Fruit Growers' Society, report, among other well-known kinds, the following new foreign pears, which promise well:—

Comtesse d'Alost. Size, large; second quality; quite as good as Louise Bonne de Jersey, and as handsome. October.

Beurré Bachelier. Large; first quality. November and December.

Duc de Brabant. Large size; first quality. October and November.

Colmar Bonnet. Medium to large; quality good. Last of September.

Doyenné Downing. Medium size; good, melting, buttery and musky. Resembles a White Doyenné. October.

Barry. Medium size; very juicy and sugary, and fine flavor.

Beurré Clairgeau, about which there has been so great a variety of opinions, the Committee state, “will doubtless be one of the most valuable market pears, and cannot be too strongly recommended for that purpose.” This we believe will be the opinion of every pomologist.

DESCRIPTIONS OF SELECT APPLES.

BY THE EDITOR.

NEW varieties of apples are annually produced, and brought before the pomological world as candidates for favor. Indeed in our country, at least, there seems to be no limit to the number of seedlings. Wherever we go, at whatever exhibi-

tion we attend, numerous and unfamiliar forms and unknown names are presented to our notice, and so good are many of them that we are forced to the same conclusion of M. de Jonghe, the Belgian pomologist, that a hundred seedlings, raised from any collection of established varieties, are likely to prove about as good as their parents. Still, the degrees of excellence are very great, and so many requisites are necessary to constitute a really valuable variety, that however good a variety may be as a local fruit, it is far from coming within the category of a popular and universally cultivated variety. Our object is to record those of the latter description, though occasionally they may not quite come up to it.

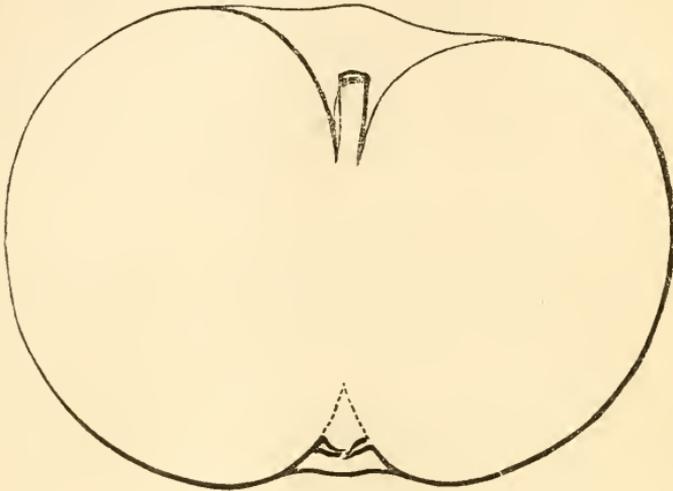
LXVII. SHIAWASSEE BEAUTY.

In our volume of last year (XXVI., p. 64) we briefly noticed this new apple, and copied a description of it from the Michigan Farmer. This appeared to us such an accurate account of the Fameuse, that we were led to inquire if it was possible it could be a different apple? With our own description of the Fameuse before us, and that of the Shiawassee Beauty by Mr. C. Downing, we could find no difference except that its form was "much depressed," which might not be the case with all the specimens.

Last autumn, however, we were fortunately enabled to examine some fine specimens, exhibited by Mr. T. T. Lyon of Michigan, at the meeting of the Pomological Society in Philadelphia, and were enabled to judge of their identity, especially, as Mr. Lyon gave us some fine fruits for examination and trial. We were, it is true, as soon as we saw the specimens, impressed with their great resemblance to the Fameuse, and this was not removed by a trial of their quality. The only possible difference we could make out was a more depressed or rather oblate form, and a very short stem. Here the difference ended. In color of the skin, texture and whiteness of the flesh, and quality of the fruit, they appear identical, and we can only suppose it to be a seedling from the Fameuse, retaining all its beauties and excellences, but, as Mr. Lyon informs us, a better growing and more productive tree, and better adapted to our climate. We think it will prove a very valuable variety.

The tree is a strong, upright grower, until it begins to bear abundantly, when the branches become pendent from the weight of the fruit. Our description is as follows:—

SIZE, medium, about three inches broad, and two inches deep: Form, oblate, very regular, rounding off to each end: Skin, very fair, smooth, glossy, with a greenish yellow ground,



6. SHIAWASSEE BEAUTY.

nearly covered with brilliant red, deepest in the sun, and dotted with yellow specks: Stem, very short, less than a quarter of an inch long, rather slender, and rather deeply sunk in a broad, regular, deep cavity: Eye, medium size, closed, and little sunk in a small, regular basin; segments of the calyx small, short: Flesh, fine, white, crisp and tender: Juice, abundant, pleasantly acid, with an aromatic perfume: Core, small: Seeds, medium size, dark brown. Ripe in October and November.

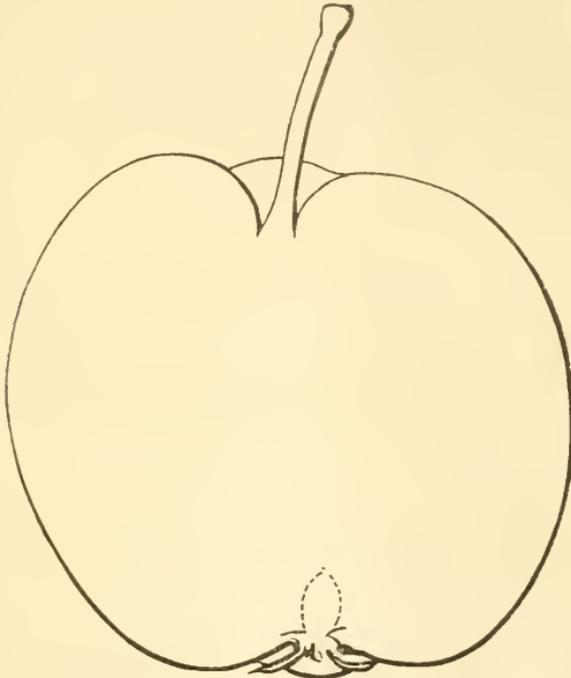
LXVIII. CAROLINA RED JUNE. Downing's *Fruits and Fruit Trees*. Rev. Ed.

Red June.
Blood June.

Much has been said recently in favor of southern-raised apples, as generally much better adapted to a southern climate, and superior in quality to most northern varieties. That they

may be better suited to the climate is possible, but that they are better than the popular and well known apples, not very probable. The Carolina Red June (FIG. 7) is said to be one of these, at least its name so indicates, though Mr. C. Downing says its origin is somewhat uncertain.

It was unknown to us, except in name, until last season, when one of our dwarf trees produced a small crop of very



7. CAROLINA RED JUNE.

beautiful apples, medium sized, fair, smooth, and of the deepest red or purple crimson shade, as prepossessing to the eye as a lover of handsome apples could wish. These began to ripen early, about the same time as the Williams, and led us to think it was one and the same variety. But subsequent examination and trial reversed our judgment.

At the south and southwest, it is considered the best early apple. With us we do not esteem it so much as either the Primate or Early Harvest, but it is a good apple notwithstanding, and its rich color and excellence combined render it a most acceptable addition to a collection of early varieties.

The tree is moderately vigorous and upright, and the fruit is borne in clusters often at the ends of the shoots.

SIZE, medium, about two and a half inches broad, and two and a half deep: Form, roundish oblong, largest near the stem, narrowing little to the crown and slightly ribbed: Skin, very smooth, fair, with an oily touch, clear dark red, and deep purplish crimson on the sunny side: Stem, rather long, three quarters of an inch in length, rather slender, and inserted in a small, rather deep, contracted cavity: Eye, large, closed, and little sunk in a ribbed basin; segments of the calyx very long, reflexed: Flesh, white, tinged with red, fine, tender and crisp: Juice, tolerably abundant, pleasantly acid, and well flavored: Core, large, slightly hollow: Seeds, small, light brown. Ripe in August.

LXIX. DYER. Kenrick's *American Orchardist*.

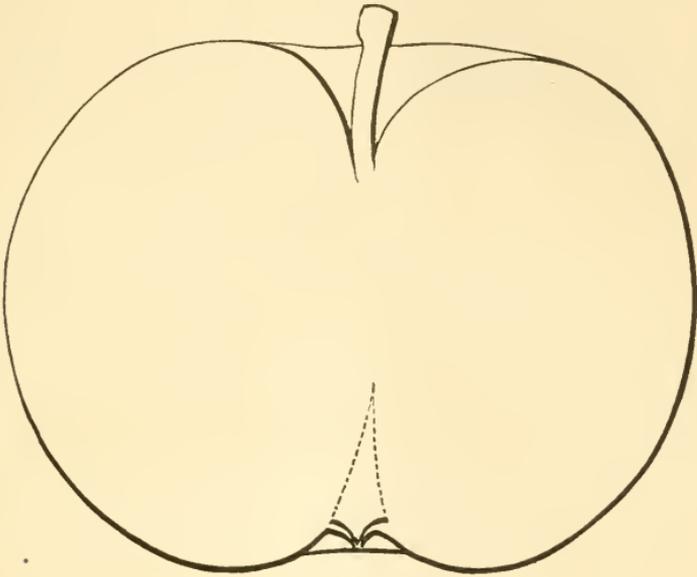
Pomme Royal,	}	According to Downing's <i>Fruits and Fruit Trees</i> , Rev. Edition.
Smithfield Spice,		
Mygatt's Bergamot,		
Beard Burden,		
Tompkins,		
Coe's Spice,		
Bullripe,	}	According to Elliott's <i>Fruit Grower's Guide</i> .
Golden Spice,		
Pomme Water,		
Bard Apple,		
White Spice,		

Downing calls this a popular New England apple, though supposed to be of French origin. What the reasons are for supposing it anything but a native apple, are not given. That we have not had it from France or England under any other name is certain, and in the face of such evidence we believe it to be a genuine American apple.

That it is a very fine fruit its multitude of synonyms show. Long cultivated, it has obtained local names just as it has pleased the taste of those who grew it, and whose good opinion of it caused its rapid dissemination. There is, perhaps, some doubt as to which name has priority, but as Mr. Kenrick was the first to describe it, from specimens sent to the Massachusetts Horticultural Society by Mr. Dyer of Rhode Island, in compliment to him for the introduction of so fine an apple, we think his name should be retained.

As an early autumn apple there are few which equal it. In the right admixture of sweet and acid, as well as in its rich spicy aroma and crisp yet tender flesh, it is almost unsurpassable, and few who know it would consider their collection complete without possessing the Dyer, (FIG. 8.)

SIZE, medium, about three inches broad and two and a half deep: Form, roundish, slightly depressed, largest about the



8. DYER.

middle: Skin, fair, smooth, pale yellow, greenish about the stem, and more or less dotted and traced with thin russet, brownish on the sunny side: Stem, medium length, about half an inch long, stout, and inserted in a small not very deep cavity: Eye, small, closed, and but little sunk in a small furrowed basin; segments of the calyx short: Flesh, yellowish white, fine, very crisp and tender: Juice, abundant, high flavored, with a rich spicy aroma: Core, medium size, closed: Seeds, medium size, pale. Ripe in October and November.

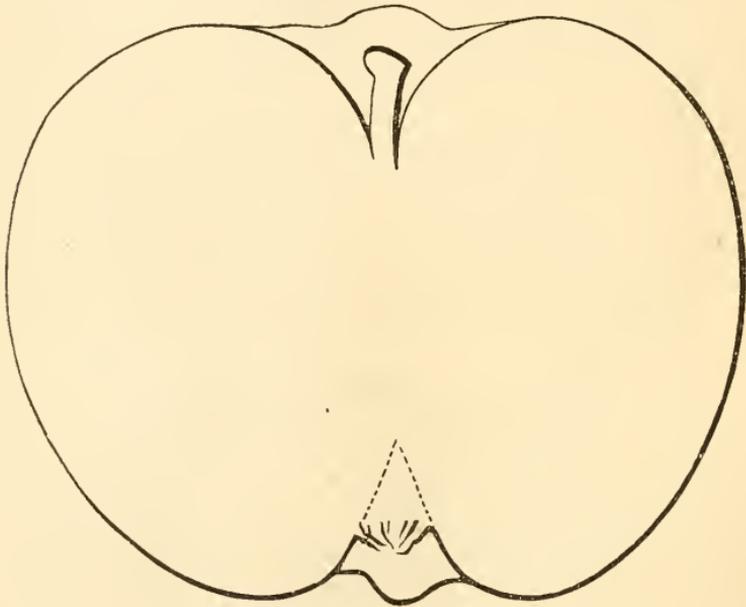
LXX. QUINCE. *Coxe's View of Fruits.*

Cole's Quince.

Under the name of Cole's Quince a variety was introduced to notice some years ago, by the late S. W. Cole. It was said to have been raised by Capt. Henry Cole, of Cornish, Me.

Whether this is so or not, we have become so well convinced that it is nothing more than the Quince apple of Coxe, that we do not hesitate to consider them identical. If Capt. Cole raised it, it was a reproduction of the same fruit, possessing no qualities to distinguish one from the other, so that the original name above should be retained.

Last year the top of a large tree, which we had grafted with this variety because so well recommended, came into full bearing, and a beautiful crop it was, literally loaded with large golden fruit, which began to fall from the tree in September, and continued to drop till the period of gathering in



9. QUINCE.

October. We were highly gratified to find it so good an apple, and equally surprised that it should have been so long overlooked and neglected.

Coxe's remark, that it somewhat resembles a large yellow Newtown pippin, at once describes this apple, for it is so similar that but for the season we could scarcely distinguish one from the other. He also states that it originally came from New York, though it does not appear to be much known there. In the vigorous growth of the tree, its great product-

iveness, the large size and excellence of the fruit, its early maturity and gradual ripening, few varieties surpass it. Its cooking qualities are of the highest order; and when fully mature, its rich and peculiar quince flavor render it a good dessert fruit. Few varieties possess a greater combination of good qualities, and it should be far more extensively cultivated.

SIZE, large, about three and a half inches broad, and nearly three deep: Form, roundish conical, broad at the base, narrowing towards the crown, with numerous prominent ribs extending to the eye: Skin, fair, smooth, pale yellow, russeted around the stem, slightly tinged with blush in the sun, and thinly covered with very large round russet specks: Stem, short, less than quarter of an inch long, and set in a broad, open, rather deep cavity: Eye, large, open, and sunk in a moderately deep, prominently ribbed basin; segments of the calyx short, broad, little woolly: Flesh, yellowish white, rather fine, crisp and tender: Juice, tolerably abundant, sprightly, acid, with a quince flavor: Core, large, slightly hollow: Seeds, rather large, dark brown. Ripe from September to December.

NOTES ON THE VEGETATION OF JAPAN.

FROM THE GARDENERS' CHRONICLE.

TAKEN DURING A TRIP INTO THE INTERIOR TO MOUNT "FUSI YAMA," THE HOLY MOUNTAIN OF THE JAPANESE, IN THE MONTH OF SEPTEMBER, 1860. BY JOHN G. VEITCH.

THE vegetation of Japan is remarkable for the immense variety of trees and shrubs growing throughout the length and breadth of the land. Three fourths of these may be said to be evergreens, giving the country almost as fresh an appearance during the winter months as in summer.

The country we travelled through during our trip is probably second to no other in point of general vegetation; from the lowest valley to the mountain summits it is one dense mass of luxuriant trees and shrubs. The trees of considera-

ble size which we met with consisted of pines, oaks, maples, &c. Others of less dimensions, viz., beech, lime, alder, chestnut, &c., give a pleasing variety of foliage. The main roads are planted wherever practicable, with pine avenues. These trees often attain the height of from 150 to 180 feet; their higher branches forming a perfect covered archway. The splendid effect thus produced by miles of noble trees, can scarcely be described.

Cryptomeria japonica (the Cedar of Japan) must undoubtedly be placed as one of the finest trees found in the country. It grows throughout the entire empire, attains a great height and circumference, and in point of beauty is truly magnificent. Amongst the many splendid specimens we met with, I noted the following as being the most striking:—1st. On the main road from Ha-tu-jikee to Hakone, an avenue of several miles in length, three trees which I measured in succession were 15 feet, 14½, 13½ feet in circumference at three feet from the ground. 2d. On the road from Messima to Atame I met with three noble specimens standing singly in the midst of a small village, about 170 feet high, and 16 feet 6 inches in circumference at three feet from the ground. Near Atame we passed a forest remarkable for the peculiar straight trunks of the trees. They had grown in close proximity to each other, and consequently had lost the greater portion of their branches. The effect produced was very similar to that of an immense number of ships' masts. Mount Hakone, 7000 feet in elevation, is clothed to the top with dense forests of *Cryptomeria*, *Thujopsis dolabrata*, *Thuja pendula* and *orientalis*, *Retinospora obtusa* and *pisifera*.

The following are some of the most striking trees and shrubs met with during our journey:—

Abies letolepis, *A. firma*, *A. bifida*, *A. Tsuga*, on Mount Fusi Yama.

Acer, many species growing commonly.

Adiantum sp. nova, Mount Hakone.

Alnus glutinosa (Alder,) the foot of Fusi Yama and other parts.

Aralia edulis, near Atame; *A. Sieboldi*, common in all valleys.

- Aucuba japonica*, common ; *foliis variegatis*, common.
- Asplenium fontanum*, slopes of Mont Hakone ; and three or four new ? species.
- Azaleas : splendid bushes, plentiful in all forests at low elevation.
- Bambusa Metake*, very common in low-land forests ; *foliis variegatis*, cultivated in gardens.
- Benthamia japonica*, Mount Hakone.
- Berberis japonica*, seen commonly throughout the journey.
- Broussonetia papyrifera*, planted on the road sides.
- Buddlea* sp., grown largely at the foot of Mount Fusi Yama.
The Japanese manufacture paper from the bark.
- Camellia japonica*, splendid trees, common in all valleys.
- Cephalotaxus* sp., resembling *C. Fortuni*, Mount Hakone ; another with foliage very pointed and sharp, Mount Fusi Yama.
- Castanea vesca*, near Messima.
- Chamærops excelsa*, seen constantly in the whole trip to the foot of Fusi Yama.
- Citrus japonica*, common in valleys and gardens.
- Clematis*, 2 or 3 sp., not seen in flower.
- Convolvulus major*, many varieties, very common.
- Corylus avellana* (the Hazel,) Mount Fusi Yama.
- Cryptomeria japonica*, in all valleys on Mount Hakone, at 7000 feet ; not found on Fusi Yama.
- Cycas revoluta*, common in all temple gardens.
- Daphne japonica*, *foliis variegatis*, near Messima.
- Deutzia scabra*, common on the sides of hills.
- Diervilla*, two or three sp. on Mount Hakone, not seen in flower.
- Eriobotrya japonica*, near Omio.
- Euonymus japonicus*, a common shrub.
- Fagus sylvatica* (Beech,) foot of Mount Fusi Yama and Hakone.
- Forsythia suspensa*, near Kanagawa.
- Funkia*, two variegated varieties at the foot of Mount Hakone.
- Hibiscus mutabilis*, single and double, purple and white, common.
- Hydrangea japonica*, *bracteata* and *hirta*.

- Illicium floridanum* and *religiosum*, near Odawara.
- Ilex* sp. unknown, 10 to 12 feet, near Hakone and in the valleys.
- Iris* sp., one red, one white, unknown, near Minaday; another is planted on the ridge of the thatch of cottages in all villages.
- Juniperus* sp., 30 to 40 feet, unknown, Atame.
- Laurus Cinnamomum*, Omio and most forests.
- Lilium callosum*, foot of Hakone.
- Magnolia* sp., Mount Fusi Yama; foliage similar to that of *M. macrophylla*.
- Musa paradisiaca*, the Plantain, Murryana and Messima.
- Nerium japonicum*, Murryana.
- Gardenia florida* and *radicans*, common.
- Orontium japonicum*, common throughout the woods; a variety, *foliis variegatis*, grown in pots.
- Onoclea* sp. nova? foot of Mount Fusi Yama.
- Paulownia imperialis*, Murryana and other parts.
- Pernettya* sp. nova, habit dwarf, 9 inches, berries pink, Mount Fusi Yama.
- Pinus Massoniana*, common, the avenues are often formed of this Pine; *Pinus parviflora* is common on Mount Hakone and other parts.
- Pittosporum Tobira*, a common shrub in low lands.
- Podocarpus macrophyllus*, foot of Mount Hakone also near Kanagawa.
- Poinciana regia*, Odawara.
- Quercus cuspidata*, common; *Q. glabra*, between Hara and Messima; sp. unknown, foliage very large, between Hakone and Fusi Yama.
- Retinospora obtusa*, 30 to 40 feet, common throughout; *R. pisifera*, 30 to 40 feet, common throughout.
- Rubus* sp. unknown, foot of Fusi Yama.
- Spiræa Thunbergii*? common in most valleys; also a sp. unknown, Mount Fusi Yama.
- Smilax* sp. unknown, a common plant trailing over slopes.
- Thea Bohea*, straggling bushes throughout our journey; plantation near Omio.
- Thujopsis dolabrata*, 40 to 50 feet high, forests on Mount Hakone.

Thuja pendula, Mount Hakone ; *T. orientalis*, foot of Mount Hakone.

Weigela rosea, foot of Mount Fusi Yama ; another species not seen in flower.

Wistaria sinensis, rambling throughout the woods.

Woodwardia japonica, on slopes of Mount Hakone.

THE AGRICULTURAL CROPS AND VEGETABLES OF JAPAN.

The main crop of the country passed through is rice—grown generally in low marshy valleys, and irrigated as in China. In cases where the ground does not admit of irrigation, a kind is cultivated which succeeds in a dry soil. The latter crop, however, is much less productive. Having both varieties at their command, the Japanese grow immense quantities. Hills of considerable elevation are terraced to the top, producing a valuable crop, and giving the country a most picturesque and fertile appearance.

Two species of Millet are grown largely. (1.) Dwarf, two to three feet. (2.) Tall, five to six feet. The dwarf kind is grown in fields, similar to an English wheat field, sown either broadcast or in drills. The tall kind is transplanted when young in single rows round the outer edges of the fields in which the dwarf millet is grown.

Solanum esculentum (the Egg plant) is largely grown for the sake of its fruit, which is much eaten by the natives.

Caladium esculentum, Sweet Potato (*Dioscorea Batatas*), and ginger, are all extensively cultivated ; of the first both leaves and roots are largely consumed.

It would be a point of considerable interest to ascertain the cause of all the Japanese vegetables being more or less flavorless. From the little I have seen of their modes of cultivation, I consider it to arise from too much strong manure being given when they are in a growing state. This causes them to grow rank and tasteless. Many of our crops in Europe are very similar.

Indian corn grown in small quantities with variegated foliage ; I only saw one patch of this pear near Fusi Yama. Beans, several sorts, both dwarf and running. Peas, a dwarf variety, grown largely in fields. Tobacco, grown in fields.

Carrots, turnips, onions, pumpkins, gourds, cucumbers, chilies, &c., grown in cottage gardens. Also, many little things peculiar to Japanese taste only.

Cotton, or *Gossypium herbaceum*, and *Thea Bohea*, the tea shrub, are not extensively grown in the country we passed through. But occasional fields of the former, and plantations of the latter, are met with.

JAPANESE FRUIT.

Nothing is more disappointing to Europeans visiting Japan for the first time than the scarcity of fruit that everywhere prevails, and the insipid flavor of what is produced. No country can be more favorably situated for its cultivation. The soil is very rich and productive. The climate is all that can be desired, yet throughout the entire empire fruit is scarce and bad. From the short experience I have had during my stay in these parts I can scarcely hazard an opinion in the matter, but from the little I have seen I consider the secret to lay in the Japanese paying no attention to the improvement of fruit. The original kinds have in all probability been grown year after year, and no pains have been taken to improve them. I am further strengthened in this opinion on finding that one or two varieties of each kind of fruit only exist. For instance, of peaches, pears, grapes, &c., only one kind is grown; if there be a little difference in some, it is merely that they are larger or smaller varieties of the same kind. There is no difference in point of shape or flavor. I feel confident that if a few of our English fruit trees were imported and a fair trial given them, they would prove the soil and climate of Japan to be capable of producing fruit equal to any country in the world.

The following fruits are met with:—Cherries, chestnuts, figs, grapes, oranges, pears, peaches, plums, walnuts, and melons two or three kinds.

[Since the above article was received several of the new trees found by Mr. Veitch have been described, and we shall give an account of them in our next number.]

FLORICULTURAL NOTICES.

THE PLANTS OF JAPAN.—Notwithstanding the Americans were the first to obtain treaties with Japan, they have so far only made use of the commercial advantages connected with them. Rich as the country is known to be in plants, not a word has been said in relation to them. Our government, at great expense, has sent agents to Europe to pick up worthless seeds and plants, which could have been obtained in abundance at home, but has overlooked one of the best opportunities to enrich our gardens with some of the finest trees and shrubs. But if Americans take no interest in such things, enterprising Englishmen do, and they have embraced the earliest opportunity to act. Mr. J. G. Veitch, grandson of the well-known nurseryman of Exeter, sailed for Japan a year or more ago, and an account of his progress in his researches for Japan plants has appeared in the *Gardeners' Chronicle*, which is not only very interesting, but gives a list of the different plants found growing in such parts of the country as he visited—for as yet foreigners are not allowed to travel in the interior. On the 2d of September, at Kanagawa, he learned that the consul general of Great Britain, Mr. Alcock, was coming from Jeddo to visit Fusi Yama, the great mountain of Japan, and Mr. Veitch was in hopes to accompany him, though none but attachés were allowed to go. Fortunately, Mr. Veitch succeeded in his effort, Mr. Alcock appointing him as Botanist, pro tem., to her Britannic Majesty's Legation at Jeddo. "You may imagine," says Mr. Veitch, "that I grew six inches taller on my appointment." He thus proceeds:—"This mountain is said to be 14,000 feet high, and is supposed by the Japanese to be holy. Thousands of pilgrims go there every year, and one year in sixty females are allowed to go: this happens to be the sixtieth year. Our party will be twenty-eight in all, eight Europeans, and twenty Japanese attendants, interpreters, &c. We shall be the first foreigners ever permitted to go inland, or ascend the mountain.

"The Japanese are great lovers of flowers and shrubs, and I find quantities of plants grown by them in their gardens,

which I never saw growing wild, nor can I ascertain where they are to be had in a wild state. Endless varieties of plants can therefore be had in the towns themselves, and others I can procure from the natives as I go on. The kinds of conifers I am most anxious to procure appear to me the scarcest; one or two pinuses, in the way of our Scotch pine, grow everywhere, likewise *Cryptomeria japonica*, but the rarer specimens are scattered, and apparently not plentiful."

Mr. Veitch states that he collected seeds of the Fusi Yama pines, &c., altogether about twenty-five kinds; the only opportunities he had were in picking them as he rode along. The visit occupied thirteen days, and in another page we give Mr. Veitch's own account of the vegetation of Japan, which will be found highly interesting. There is no doubt we shall have many trees growing at a high elevation which will be perfectly hardy in our climate.

554. HETEROCE'NTRON MA'CRODON *Planch.* LARGE-TOOTHED HETEROCENTRON. (Melastomaceæ.) Venezuela.

A hothouse plant; growing three or four feet high; with pale pink flowers; appearing in spring and summer; increased by cuttings; grown in light rich soil. Illustration *Horticole*, 1860, pl. 258.

A showy plant, with very large seven-nerved leaves, profusely covered with a downy pubescence. The flowers, which appear in terminal cymes, somewhat resemble the Chinese primrose, but are larger, of a beautiful white, slightly tinted with rose. It flowers at various seasons of the year, from spring to autumn, and is considered an excellent acquisition to every collection. It was originally discovered by M. Linden, but recently introduced by Messrs. Veitch of London. (*Ill. Hort.*, October.)

555. CYDONIA JAPONICA, VARIETIES. *Ill. Hort.*, 1860, pl. 260.

1. GAUJARDII; 2. PAPELEUII; 3. PRINCESS EMILIE SOUTZO.

The importance of hybridization we have often alluded to, as well as its effects in adding to our stock of beautiful plants. Recently the Belgian cultivators have attempted the improvement of the Japan pear, so well-known in our gardens, and the result has been the production of several new and very

distinct varieties, three of which are named above. Gaujardii has flowers of a brilliant rose; Papeleuii, of a pale citron, entirely new and unique; and Princess Emilie Soutzo, of a dark blood red. All are highly beautiful, and must place this old and favorite shrub among the finest ornaments of the garden. It is really cheering to find cultivators giving attention to such hardy shrubs as these, which will withstand our most severe winters unharmed. We predict great popularity for these new and remarkable varieties. (*Ill. Hort.*, October.)

556. *BEGONIA IMPERIALIS*, VAR. *SMARGDINA* *Nob.* EMERALD-GREEN-LEAVED IMPERIAL BEGONIA. (*Begoniaceæ.*)

A greenhouse plant; growing a foot high; with white flowers; appearing in winter; increased by cuttings; grown in light rich soil. Illustration *Horticole*, 1860, pl. 262.

Another new dwarf and handsome plant, with foliage rivalling many of its congeners, for the beauty of its emerald green tints, literally speaking, set off by the charming and numerous reflections of the sun upon the myriads of globules which cover the surface, and which can only be compared to velvet spangles; the under side is equally beautiful, as each gibbosity of the surface is replaced by a little hexagon excavation. The flowers are white.

This charming plant, both in habit and foliage, was discovered and introduced by M. Griesbright, and will prove a most welcome acquisition to any collection. (*Ill. Hort.*, Nov.)

557. *CORDYLINE INDIVISA* *Kunth.* ENTIRE-LEAVED CORDYLINE. (*Asparagaceæ.*) New Zealand.

A greenhouse plant; growing four feet high; with beautiful foliage; increased by cuttings; grown in peat, leaf mould and sand. Illustration *Horticole*, 1860, pl. 264.

The *Dracænas* are all very handsome plants, remarkable for their symmetrical growth, and the diversity and elegance of their large foliage. The present subject was originally called a *Dracæna*, but is now known as *Cordyline*. Its recent introduction has made quite a sensation in the horticultural world, considered, as it is, the finest of the genus. In general habit it is similar to *D. umbra caulifera*, but its foliage is larger, and incomparably more beautiful, in the rich, neatly tricolored venation of green, white, and orange, upon a soft, clear, yellowish green.

This Cordyline was first discovered by Foster, who accompanied Capt. Cook in his voyage round the world in 1772—1775. Very recently it has been rediscovered, growing in New Zealand, and living plants sent to England, where it has speedily found its way into the trade. It has an arborescent stem, attaining the height of six to eight feet, little branched, covered with leaves to the summit. These leaves are ensiform, about two and a half feet long, and four inches wide, of a delicate soft green, elegantly striped the entire length, with dark green, grayish white and orange, the broad midrib being of the latter color. In addition to its elegant foliage the plant throws up a tall stem, terminated with a raceme of flowers. It is still rare, but its great beauty will render it a conspicuous object, and an indispensable addition to all choice collections. It flourishes well in the open air in summer, and only needs the protection of an ordinary greenhouse in winter. (*Ill. Hort.*, November.)

558. RHODODENDRON, BIJOU DE GAND. Garden Hybrid.
Ericàcææ. *Ill. Hort.*, 1860, pl. 265.

The Belgians are enthusiastic in the culture of this the noblest of hardy evergreen shrubs, and millions of seedlings are annually produced by hybridization, for the purpose of obtaining new and remarkable varieties. In this they have not been unsuccessful: for the recent seedlings are great improvements, and add to the immense variety which already exists. One amateur, M. Byles, devoted his whole life to the improvement of this plant, and left as a legacy its great results in more than twenty-five superb sorts, some of them entirely distinct and splendid, of which the *R. Bylesiana* will perpetuate his name.

We have now before us another of this genus, equally distinct, raised by M. Haentjens, florist of Gand. It is not, perhaps, quite so hardy as some, requiring the protection of a frame or greenhouse in winter. It, however, well merits all this care. The flowers are disposed in very large heads, presenting a magnificent aspect. They are large, of a delicate soft rose, or rosy tinted white, entirely edged with bright rose, and richly ornamented on the upper petals with large

distinct dark brown spots; the lobes of the corolla, recurved at the summit, and undulated on the borders. It is a very unique and striking variety. (*Ill. Hort.*, Nov.)

559. *ERODIUM PELARGONII-FLORUM* *Boiss. et Heldr.* PELARGONIUM-FLOWERED STORK'S-BILL. (Geraniaceæ.) Cape of Good Hope.

A greenhouse plant; growing one foot high; with white and purple flowers; appearing all summer; increased by cuttings; grown in light rich soil. *Bot. Mag.*, pl. 5206.

A very pretty species of *Erodium*, nearly allied to the *Geranium*, producing clusters of white flowers, prettily speckled with violet purple. It thrives well in the greenhouse, and blooms abundantly all summer, and will probably become a useful bedding plant. (*Bot. Mag.*, Oct.)

560. *CISSUS VELUTINUS* *Linden.* VELVETY-LEAVED CISSUS. (Ampelideæ.) Malay Islands.

A hothouse plant; growing four feet high; with red flowers; appearing in summer; increased by cuttings; grown in light peaty soil. *Bot. Mag.*, pl. 5207.

A new species of the *Cissus*, very nearly approaching the charming *C. discolor*, and scarcely inferior to it in beauty. "It wants, indeed, the warm, deep purple glow which prevails in the young foliage of the latter; but, on the other hand, the inflorescence is larger in the present species, and of the same coral red all over, instead of the cymes and flowers being white, as in *C. discolor*." In habit it is the same as that species, and flowers at various seasons of the year. As a companion to it, its deep coral flowers will form a rich contrast, and make it a decided acquisition among variegated-foliaged plants. (*Bot. Reg.*, Oct.)

561. *A'LOE A'LBO-CINCTA* *Haworth.* WHITE-MARGINED ALOE. (Asphodeleæ.) Algoa Bay.

A greenhouse plant; growing three feet high; with scarlet and yellow flowers; appearing in summer; increased by cuttings; grown in light rich soil. *Bot. Mag.*, pl. 5210.

A very splendid species, with a large stout trunk, and thick leaves, a foot or more long, throwing up a long stem terminated with a large spreading panicle of orange scarlet drooping flowers. Dr. Hooker thinks it "the handsomest of the genus, by far." The foliage is of a glaucous green, marked with obscure whitish spots. It flowers in the summer. (*Bot. Mag.*, Oct.)

562. *AGAVE YUCCÆFOLIA Red.* YUCCA-LEAVED AGAVE.
(Amaryllidaceæ.) Mexico.

A greenhouse plant; growing fifteen feet high; with greenish flowers; appearing in summer; increased by offsets; grown in rich soil. *Bot. Mag.*, pl. 5213.

A very distinct species, remarkable for the great length of the flower-stem, reaching twenty feet—the height a plant attained at Kew, where it flowered the past summer. The distance of the flowers from the spectator renders them inconspicuous; but when examined more closely, they are by no means insignificantly small, of a bright yellow green, with much extended, yellow, large stamens. The stem grows about three inches thick, and the leaves one to one and a half foot long. It will thrive in a cool greenhouse, and its free-flowering habit and smaller size, will render it a favorite plant where the old *Americana* occupies too much room. (*Bot. Mag.*, November.)

563. *METHO'NICA GRANDIFLORA Hooker.* LARGE YELLOW-
FLOWERED AFRICAN METHONICA. (Uvulariæ.) Africa.

A hothouse climber; with yellow flowers; appearing in summer; increased by offsets; grown in very rich light soil. *Bot. Mag.*, pl. 5216.

A new and very showy species of the *gloriosa*, of which the *G. superba* and *Plantii* are well-known to our cultivators. This one has much larger flowers, with nearly smooth petals, of a clear deep yellow. The growth is also much more vigorous, attaining the height of ten feet, and clothing the rafters of the stove, at Kew, with “leafy branches and the copious flowers, from the month of July to the end of September.” Hybridization with the other species may develop some new varieties of still greater beauty. (*Bot. Mag.*, Nov.)

564. *YU'CCA CANALICULATA Hooker.* CHANNEL-LEAVED YUCCA.
(Liliæcæ.) Mexico.

A greenhouse plant; growing four feet high; with yellowish white flowers; appearing in summer; increased by offsets; grown in rich sandy soil. *Bot. Mag.*, pl. 5201.

A new species of *Yucca*, which flowered in the collection of Mr. W. W. Saunders of Riegate, near London, the past summer. Dr. Hooker says it “may rank next to *Yucca gloriosa*, differing, however, from that in the form and color of the flowers, and still more in the singularly straight, rigid

very concavo-canalculated foliage. We know of no species with such densely-flowered panicles." The stem grows about eighteen inches high, and three or four inches in diameter, with leaves nearly two feet long, concave, or deeply channelled, with entire margins. The panicle of flowers is dense, and each branch thickly clothed with large sulphur-colored, drooping, globose flowers. The same species has been also received from France. It will be a fine addition to this now popular and handsome plant. (*Bot. Mag.*, Nov.)

565. BESCHORNERIA YUCCOIDES *Hooker*. YUCCA-LEAVED
BESCHORNERIA. (Amaryllidaceæ.) Mexico.

A greenhouse plant; growing a foot and a half high; with greenish flowers; appearing in summer; increased by offsets; grown in rich sandy soil. *Bot. Mag.*, pl. 5203.

A most striking plant, distinguished by the long, slender, coral-like scape and panicle, with its graceful, slender, drooping branches of the same color, bearing racemes of large pendent green flowers, in shape not much unlike those of some long-flowered Fuchsia, but of a dark yellow green color, tinged with red. It is a highly ornamental plant, and continues a long time in blossom. It requires a cool greenhouse. (*Bot. Mag.*, Nov.)

General Notices.

WINTER AND SPRING BLOOMING OF THE LILY OF THE VALLEY.—To have flowers by the beginning of January, the latter end of November is the time to take up the roots. Those selected must not be less than two years old, and, in appearance, are something similar to small heads of asparagus, when about two or three inches high, and are furnished with fibrous roots; each of these tubers are wrapped round with a little moss, and placed in pots or mignonette boxes, close together. The boxes or pots are previously filled with old bark or light earth, a thin portion is laid over the crowns, and then a layer of moss, which keeps the roots moist, and assists in drawing up the flower stems. The boxes or pots are then placed on a fire-flue, or any warm situation. Over these are turned boxes or pots of the same dimensions, upside down, to keep the plants quite dark; in three or four weeks, according to the warmth of the situation, they are abundantly furnished with their lovely bell-shaped flowers, six or eight inches high. Those coming into flower first, are taken out of this situation, being easily removed by having moss round the roots, and placed in

small wicker baskets, or an ornamental vase, with hyacinths, Van Thal tulips, &c., which are forced, something similar, for this purpose. When this sort of winter flower-basket, pyramid or vase, is properly executed, the colors of the flowers regularly mixed, and the spaces betwixt the plants filled up with ornamental moss, it certainly has a very neat and pleasing appearance.

Where a succession is required, the roots are kept in a shady place, or in a border in the garden, covered a foot or eighteen inches with fresh stable litter, so as to be easily come at in frosty weather, as occasion may require. When finished flowering, they are planted in the garden at the latter end of March, and form a plantation for forcing purposes again in two or three years.—(*Floricultural Cabinet.*)

EXTREME COLD IN GREAT BRITAIN—The present winter has been one of the coldest during the present century. On the morning of December 24th, at 6 o'clock, the thermometer stood at 32°; at 11 o'clock it had sunk to 5°; and at 11 o'clock at night, it fell to 12° below zero! the most sudden cooling of the atmosphere we ever saw recorded. This was at Chatsworth, as noted by Sir Joseph Paxton. Throughout England the thermometer fell from 8° above to 13° below zero, and this cold continued, though not quite so severe, up to the 15th of January. It is feared that all but the hardiest trees and shrubs are completely killed to the ground. Mr. Paxton says that a lime tree, forty years old, was split up twenty feet, with a crack in it three quarters of an inch wide. Evergreen oaks, thirty years old, six inches in diameter, were killed to the ground! It will be a serious loss to English nurserymen, and very destructive to ornamental plantations throughout the kingdom.

HOW TO MAKE SEEDS GERMINATE.—It is stated by M. André Leroy that seeds, naturally protected by a fatty or oily pulp, may be readily made to germinate, by crushing the pulp in potash water, and afterwards rubbing the seeds in sand. Those of magnolias, hollies, yews, and the like, which will often lie in the ground for a couple of years without growing, come up readily, after having been thus treated.—(*Gard. Chron.*)

Societies.

WORCESTER HORTICULTURAL.

The Annual Meeting of this Society was held at the Hall in Worcester, Jan. 2, for the choice of officers for the year ensuing. The following were elected:—

President, Hon. Alex. H. Bullock.

Vice Presidents, Hon. John Milton Earle, Benjamin Butman, George Jaques.

Secretary, Edward W. Lincoln.

Treasurer, F. W. Paine.

Librarian, Clarendon Harris.

Trustees, Hon. Stephen Salisbury, George T. Rice, J. D. Wheeler of Grafton, Edwin Draper, Dr. Wm. Workman, Jonathan Forbush of Bolton, John C. Ripley, Wm. Greenleaf, F. H. Dewey, S. P. Champney of Grafton, Thomas W. Ward of Shrewsbury, Emory Bannister, D. Waldo Lincoln, S. H. Colton, Jonathan Grout, Edward Earle, O. B. Hadwen, Asa H. Waters of Milbury, Dr. Joseph Burnett of Southboro', Ichabod Washburn of Worcester.

Auditors, George T. Rice, S. H. Colton.

J. Henry Hill, Esq., who had served so acceptably the past nine years, declined a reëlection. The Treasurer's Report was read, and accepted. This exhibits a prosperous state of the finances of the Society, its debt having been reduced \$500 during the past year.

The following gentlemen were chosen a Committee to confer with a similar Committee of the Agricultural Society, in reference to a Joint Exhibition the coming year: Dr. Wm. Workman, O. B. Hadwen, George Jaques.

The Annual Exhibition of the Society was held in September last, and we only regret that we could not find room to give it a place. Seventy-nine contributors furnished 1002 plates of fruit, of which the apples were particularly fine. The pears were excellent, the specimens being much larger than in 1859, as the following extract from the Report will show:—

The size of the best single specimen of each of the leading varieties, at the recent exhibition, as compared with the size of such specimens last year, is shown in the following table, which was carefully prepared by Mr. Lincoln, a member of the Committee:—

	<i>Weight in 1859.</i>		<i>1860.</i>			<i>Weight in 1859.</i>		<i>1860.</i>	
	oz.	oz.	oz.	oz.		oz.	oz.		
Andrews,	6½	7½	Duchesse,	12	13½				
Beurré d'Anjou,	10	11½	Easter Beurré,	7	10				
“ Clairgeau,	12½	14½	Fulton,	4	5				
“ Gris d'Hiver,	7½	10	Flemish Beauty,	12	13				
“ Montgeron,	5	6¾	Gansel's Bergamot,	5	7½				
“ Bosc,	8	9½	Glout Morceau,	9	12½				
“ Diel,	11½	15	Henry IV,	4½	5				
“ Langelier,	5	8½	Paradise d'Automne,	5	6½				
Belle Lucrative,	8	10½	Seckel,	3½	4¾				
Buffum,	5	5½	St. Michael,	6	6¾				
Doyenné du Comice,	6½	11½	Urbaniste,	9	10				
“ Boussock,	9	14	Winter Nelis,	5¼	5¾				

Three varieties, only, of acknowledged merit, were exhibited this year, that were inferior to the specimens of 1859, viz.: Duchess of Orleans, Sheldon and Zephirin Gregoire.

The following is the weight of a few other leading varieties, exhibited this year, of which no specimens were shown in 1859 worthy of particular notice. Several of them have probably seldom, if ever, been surpassed:—

Bartlett, - - -	12 oz.	Lawrence, - - -	6½ oz.
Beurré Nantais,	8¾ "	Marie Louise, - -	8¾ "
" Superfin,	13¼ "	Swan's Orange, -	14¼ "
Dix, - - -	9 "	Sieulle, - - -	9¾ "
St. Michael Archange, 7½ oz.			

This certainly very remarkable increase in weight—an average of two ounces apiece in twenty-four specimens of as many varieties—is chiefly to be attributed, no doubt, to a very favorable season; still, much also must be claimed for a gradual improvement in the modes of cultivation, of which we every year have new evidences.

Numerous premiums were awarded, of which we have only room for a few of the largest.

LARGE COLLECTIONS.

To D. W. Lincoln, for the largest and best collection of not less than three specimens each, \$5.

To J. M. Earle, for the second largest do. do. do., \$4.

LIMITED COLLECTIONS.

To B. Butman, for the twenty best varieties of not less than five specimens each, \$5.

To J. C. Ripley, for the second best twenty, \$4.

To T. K. Earle, for the best ten varieties of not less than five specimens each, \$4.

SPECIMENS OF A SINGLE VARIETY.

To Jon. Grout, for the best eight specimens of autumn pears, one variety; (Beurré Superfin,) Harris's Report.

To C. Johnson of Northboro', for the second best (Beurré Bosc.) \$1 50.

To F. A. Eldred, for the third best (Louise Bonne de Jersey,) \$1.

To E. D. Batcheller of North Brookfield, for the best eight specimens of Winter pears, of one variety, (Winter Nelis,) Harris's Report.

To Fitzroy Willard, for the second best, (Beurré Gris d'Hiver,) \$1 50.

To Henry Phelps, for the third best, (Beurré Gris d'Hiver,) \$1.

FRUIT GROWERS OF WESTERN NEW YORK.

The Annual Meeting of this Society was held in Rochester on the 9th and 10th of January, and was one of the largest and most interesting meetings ever held by the Society. All sections of Western New York were represented. Col. Hodge, the President, being unable to attend, in consequence of illness, Mr. W. B. Smith, of Syracuse, called the meeting to order, and, after preliminary business, proceeded to the choice of officers for the ensuing year, as follows:—

President, E. Moody, of Lockport.

Vice Presidents, J. J. Thomas, Union Springs; W. B. Smith, Syracuse; W. P. Coppock, Buffalo.

Secretary, C. P. Bissell, Rochester.

Treasurer, W. P. Townsend, Lockport.

Executive Committee, P. Barry, J. J. Thomas, C. L. Hoag, Lockport; W. B. Smith and Jos. Frost, Rochester.

A Committee, chosen for that purpose, reported a variety of subjects for discussion. Committees were also appointed to report fruits.

The first subject taken up was "the best method of gathering, packing, and transporting pears to market." We copy the discussion from the Country Gentleman:—

I. PACKING AND TRANSPORTING FRUIT.

The first subject for discussion presented was *the best method of gathering, packing, and transporting pears to market.*

Dr. Spencer, of Yates, uses common barrels, putting paper on the ends, and presses down firmly with a press—should be gathered carefully and packed in orchard—should be kept in a cool room, as cool as can be without freezing. Had noticed his apples always kept better after drying some days—should think pears would keep better if dried somewhat. Bartletts can be sent to market without difficulty in common barrels, by shaking down the barrels when filling, and packing tight. Winter pears should remain on the trees as long as possible without freezing.

Dr. Sylvester, of Lyons—In gathering pears be careful to have them *fully matured*—handle carefully—gather them in peach baskets and allow to sweat a week or so—pack in half barrels, arranging carefully and shake down *often* when filling—jar gently—pack so they will not move in the barrels. Keep until they will be very near the time of ripening. If sold before, they will not bring a good price. Would make three classes in sorting. By this method your first and second class will bring frequently more than all together. Sometimes he wraps in papers and packs very carefully.

It was suggested by several that all fall pears were fit to pick when the seeds were colored or black.

C. Downing, of Newburgh, said the Lewis pear did not blacken its seed, which was confirmed by another member.

P. Barry, of Rochester, said in summer pears it would not do to leave them on the trees until the seeds were black, they were always fit to pick before. The seeds ripen at the expense of the fruit. Don't think the seeds form any criterion as to the ripeness of pears. Would leave winter pears as long as he could without freezing, unless they lose their foliage, when they should be immediately gathered. About the middle of October they should be gathered by hand carefully and sorted immediately, putting the ripest ones by themselves—using half barrels or boxes, and kept as cold as can be; when it comes hard freezing weather, move inside. They usually put them upon a barn floor covered with leaves, and when winter comes on put into a barn cellar and kept cool. Pears did not keep well this year. The great point or principle is to keep them as cool as possible, sorting to keep the ripe ones from injuring the others. Thinks winter pears will have to be transported in autumn. Don't think it possible to ship winter pears in winter. The danger from freezing is so great that it never will be done. It is often said that winter pears require high temperature to ripen them. He did not find it so at all. Good, well-grown pears ripen splendidly in a cool cellar. Don't know any winter pear, if well grown, but would ripen

first-rate in a cool cellar. Thinks fall pears should be gathered pretty green, and carefully sorted, and only the good hard pears sent to market; otherwise they may be very much injured by the others. They should be sent as rapidly as possible to market. They should be dried considerably before sending. Should be sent in small quantities in peach baskets or something of that sort—have good ventilation, and have the packages very full, so as to prevent shaking. Black spots are a *fungus* growth, and when packed in barrels, spread rapidly through the barrel when the barrel is somewhat warm. This fungus affects the flesh of the fruit and makes it bitter.

H. E. Hooker of Rochester, thinks packages of half barrels are not too large to send good sound pears to market—send rapidly to market—don't think it necessary to use as much care as P. Barry recommends. Took a barrel of Glout Morcean pears this fall, and after leaving out the head for a week or so, to allow them to sweat, left out in a cool place until the very severe cold weather—then headed up tight and put into a cellar of about 40° or thereabout, and they prove of most excellent quality. To prove the success of this plan, he brought some into a warm room to ripen them. Every one preferred the pears ripened in the cellar. They were as much better as apples would be under similar circumstances. There was no difficulty in ripening winter pears any more than apples. Pears should be sent to market in the fall when they are hard, and not wait until they are ripe. They should be kept out of the cellar until they are in great danger of freezing. Fruits are much better if kept in large quantities—the fine aroma is kept in much better.

L. Barber of Bloomfield, finds that pears picked in the cool of the evening or early morning, do not ripen so rapidly as those picked in the heat of the day. Pears sweat more than apples. Would use half barrels—prefers barrels to boxes. Shake thoroughly every half bushel, and then press as tightly as possible and keep from shaking.

Mr. Jacobs—There is a common error in shipping in too large quantities—another in not properly assorting. Early apples should be sent in well ventilated barrels. Half barrels are the best for shipping pears.

P. Barry—In Europe he found that in every instance pears came in small boxes to market, holding half a peck or a peck, packed in dry moss or leaves, and in general he found they never used large boxes or barrels. The top was ventilated.

The President remarked that pears should be immediately put into a cool dry cellar, to avoid the changes which occur out of doors. Has had no experience with pears—but has had with apples.

Dr. Sylvester—Has a room, three sides wall, and one side cellar, which keeps the temperature at an even rate, and keeps fruit well.

H. E. Hooker, of Rochester, thinks apples and pears should be kept above ground, and not in cellar, until severe frosts.

The Reports on Fruits will be found under our Pomological Gossip.

When the discussions upon other subjects are published we shall report them, if interesting to our readers.

PROGRESSIVE GARDENERS.

The Annual Meeting of this Society was held in Philadelphia, November 12, when officers for the ensuing year were elected, as follows:—

President, John Pollock.

Vice President, James Eadie.

Treasurer, H. A. Drew.

Secretary. (Not yet elected.)

The Society is in a flourishing condition, having upwards of forty members. The Proceedings of the Year have been published in a pamphlet of 130 pages, consisting of twelve Essays, with the discussions of the members thereon, and the business meetings for 1860. The character of these Essays may be judged from that by Mr. R. R. Scott, on the Strawberry, which has already appeared in our pages. We shall refer to it at an early opportunity, and endeavor to find a place for some extracts. We are glad to be able to inform amateurs and gardeners that twelve three-cent stamps sent to R. R. Scott, Philadelphia, will ensure the receipt of a copy.

CONNECTICUT GRAPE GROWERS' CONVENTION.

The Annual Meeting of the Connecticut Grape Growers' Association was held at the New Haven House, January 8th. After the reading of the Annual Reports the following officers were elected:—

President, Col. D. S. Dewey, of Hartford.

First Vice President, C. S. Middlebrook, Bridgeport.

Second Vice President, E. A. Holcomb, Granby.

Secretary, M. C. Weld, Hartford.

Treasurer, Wm. H. Risley, Berlin.

It was *Voted*, That the Association offer Premiums for Grapes and Wines presented at the next Annual Meeting; and that the officers of the Association be a Committee to carry out the design of this vote, at their discretion.

The following resolutions were unanimously adopted:—

Resolved, That it is the opinion of this Society that those tried varieties, the Isabella and Catawba grapes, ripen well in many parts of this State—especially along its southern shore; but that, unless the situation be very favorable, neither (and particularly the Catawba) will ripen in its more elevated portions.

Resolved, That the Hartford Prolific and Concord are grapes that will generally ripen well throughout the State, and hence are to be recommended.

Resolved, That the Diana grape has been quite extensively tried and approved, and is to be recommended as quite sure to ripen in all fair exposures, and for its great excellence.

Resolved, That the Delaware grape now promises exceedingly well, but has not so extensively fruited that we can, from personal knowledge, give positive assurance that it is worthy the high character claimed for it by many.

Resolved, That the Rebecca grape has been sufficiently tested to show

that it is a fruit of good promise and excellency; hardy and likely to ripen, at least, in good exposure.

The best time for pruning hardy grape vines being brought up for discussion, a decided majority of those speaking were in favor of pruning in the autumn—say at about the time of the fall of the leaf, or soon after. One member, however, Dr. Charles Hooker, of New Haven, recommended—as the result of twenty years' experience with Isabella grapes—pruning from the middle of April until June; to be followed by a slight summer pruning. Bleeding, at that season, is of no injury, in his opinion; and the attempt to stop bleeding, at any time, by covering the cut end of a vine with a vegetable—say with a potatoe—only makes it bleed the longer, by keeping the end moist.

Mr. E. S. Elmer, of Hartford, presented three varieties of grapes—Dianas, Isabellas, and Catawbas—preserved in cork dust. The Dianas were remarkably plump and fresh, showing a peculiar excellence in that variety.

A sample of wine, made in 1858, from the juice of the Hartford Prolific Grape, with the addition of 1½ lb. good brown sugar to the gallon, was tried, and universally pronounced a remarkably fine dry wine.

A specimen of sweet wine, from C. S. Middlebrook, of Bridgeport, was pronounced very good, in its way;—made in 1858, from the fruit of a “cultivated wild grape,” which ripens by the 15th of September; one third water, and 1½ lb. sugar to the gallon.

From conversational discussion it appeared that the objects of the Society were being carried out very satisfactorily in the State; in the increased planting of established varieties of grapes for the table and for wine; and in the introduction and trial of all the new kinds which promise well for the same purposes.

CHICAGO GARDENERS' ASSOCIATION.

The annual election of this Society took place on Monday, January 7th at Chicago, Ill., when the following officers were elected:—

President, C. D. Bragdon.

Vice Presidents, J. Worthington, C. Layton.

Secretary, Edgar Saunders.

Treasurer, J. C. Ure.

Executive Board, C. D. Bragdon, J. Worthington, J. C. Ure, J. C. Grant, A. T. Williams.

Librarian, William Lombard.

ILLINOIS STATE HORTICULTURAL.

The Annual Meeting of this Society was held at Bloomington, Ill., December 18 to 21, 1860. There was a good attendance of members, and the proceedings were highly interesting. We shall take occasion to notice some of the reports and discussions. The following officers were elected:—

President, Dr. John A. Kennicott, West Northfield.

Vice Presidents, E. D. Kittoe, Scales Mound. Jo. Davies Co.; J. Wakeman, College Hill, Cook Co.; S. G. Minkler, Specie Grove, Kendall Co.; N. Overman, Canton, Fulton Co.; J. H. Stewart, Quincy, Adams Co.; Jona. Haggins, Woodburn, Macoupin Co.; Wm. Hostetter, Decatur, Macon Co.; Chas. Kennicott, Sandoval, Marion Co.; G. H. Baker, Cobden, Union Co.

Corresponding Secretary, O. B. Galusha, Lisbon, Kendall Co.

Recording Secretaries, H. C. Freeman, South Pass, Union Co.; C. T. Chase, Chicago, Cook Co.

Treasurer, S. G. Minkler, Specie Grove, Kendall Co.

The Society voted unanimously to hold its next Annual Meeting at Chicago, the first Tuesday in December, 1861.

Massachusetts Horticultural Society.

Saturday, Jan. 5th.—The stated quarterly meeting of the Society was held to-day—the President in the chair.

The President delivered a very interesting address, recounting the doings of the Society during the past year, and giving a condensed statement of the season. He also paid a merited tribute to the memory of several members whom the Society has lost by death, and closed with a fervent hope for its future prosperity.

The Committee appointed for that purpose reported the following Committee of Arrangements for the Annual Exhibition of 1861:—P. B. Hovey, J. S. Cabot, J. F. C. Hyde, E. S. Rand, Jr., D. T. Curtis, G. W. Pratt, C. H. B. Breck, W. C. Strong, F. L. Winship, A. C. Bowditch, W. H. Spooner, Jr., W. J. Underwood, and R. McCleary Copeland—and they were unanimously elected.

The Finance Committee submitted their Report for 1860, as follows:—

RECEIPTS FOR 1860.

By cash, balance brought forward from last year,	-	-	\$2,514 14
“ principal, from Parker, balance over and above mortgage note,	-	-	9,317 12
“ income, dividends and interest,	-	\$3,220 67	
“ “ rents,	-	-	1,589 58
“ “ receipts from Mount Auburn,		6,164 95	
“ “ assessments (\$205 from last year),		1,172 50	
“ “ miscellaneous receipts,	-	-	252 75
“ Not income, receipts from Ann'l Exhibition,		1,600 00	
			<u>14,000 45</u>
			\$25,831 71

PAYMENTS FOR 1860.

To cash paid Mount Auburn, in full, principal and interest,	-	\$6,496	90
“ “ premiums and gratuities,	-	2,124	00
“ “ salaries,	- - - -	650	00
“ “ printing, binding, and advertising,		558	00
“ “ expenses Annual Exhibition,	-	1,718	54
“ “ painting, papering, plumbing, whitening, &c., new quarters,	-	822	00
“ “ carpeting and furnishing same,	-	958	00
“ “ cancelling leases on School Street,		2,225	00
“ “ H. Munroe, bills job work and repairs to roof of old building,	-	227	93
“ “ rent, two quarters,	- - -	775	00
“ “ special awards, mechanics and miscellaneous bills,	- - -	1709	76
			<u>11,768 23</u>
Investment—To cash paid 65 shares Fitchburg R. R., cost,	-	6,625	75
Cash in the treasury, December 31, 1860,	- - -	940	83
			<u>\$25,831 71</u>

PROPERTY OF THE SOCIETY.

Permanent Funds,	- - - - -	4000	00
Lyman Fund,	- - - - -	10,000	00
20 shares Portland and Saco Railroad,	- - - - -	2,000	00
16 shares Boston and Maine Railroad,	- - - - -	1,600	00
This year—65 shares Fitchburg Railroad,	- - - - -	6,500	00
“ “ Parker's note, secured by mortgage,	- - - - -	60,000	00
“ “ Library, \$2000: furniture and glass, \$2500,	- - - - -	4,500	00
Cash on hand, December 31, 1860,	- - - - -	940	83
			<u>\$89,540 83</u>

NOTE.—The Society having paid to Mount Auburn \$6496 90, in full, owe now no debt, nothing but the prizes and bills incident to each new year, and the amount voted towards the expenses of waterworks at Mount Auburn.

It will be seen it has cost the Society over \$4000 to cancel leases and prepare new quarters, which has added to the expenses this year, and will not occur again.

\$500 were appropriated for the Library for 1861.

It was voted that a piece of plate, of the value of \$75, be presented to the Librarian, R. McCleary Copeland, for his services and efficiency in placing the Library in its present condition. Messrs. J. O. Williams, E. S. Rand, Jr. and W. C. Strong were appointed a Committee to discharge that duty.

The subject of the Back Bay Reservation was then taken up, and discussed by Messrs. C. M. Hovey, H. W. Fuller, M. P. Wilder, Tappan,

Rand, Binney, Cabot, and others, when it was voted to petition the Legislature for the grant of land to the Society, to be appropriated exclusively to horticultural purposes.

Adjourned four weeks to Feb. 2d.

Horticultural Operations

FOR FEBRUARY.

FRUIT DEPARTMENT.

Since our last remarks under this head the weather has been more steadily cold than the average of our winter months. Early in January the thermometer fell as low as 14° below zero on one morning, and there has not been more than one or two which might be termed warm winter days since Dec. 1. The snow now covers the ground to the depth of a foot, very solid, and nearly three quarters of January has been cloudy with snow. After so much cold weather we may look for a warm February.

GRAPE VINES in the grapery and greenhouse will begin to swell their buds, and, if good weather, will be quite in leaf by the end of the month. Syringe freely every fine day as soon as the buds begin to break, and maintain a slightly increased temperature as the month advances. When the buds are well started, tie up the vines to the trellis. Vines in pots may be brought into the grapery or greenhouse for a succession: those now in fruit should be freely watered with liquid manure. Vines may now be propagated from eyes or cuttings in a moderate heat.

SCIONS of fruit trees may be cut this month, and placed in earth or sand in a cool cellar.

PRUNING may be commenced the latter part of the month, where there is much to be done.

ROOT-GRAFTING should be done now, where this mode is practiced.

GRAFTING cherries may be commenced the last of the month, if the weather is mild.

STRAWBERRY, RASPBERRY, and other fruit seeds may now be placed in boxes or pots in the greenhouse or frame.

FLOWER DEPARTMENT.

Continued cold weather prevents the accomplishment of much work connected with the greenhouse and conservatory. Usually at this season, by the aid of hotbeds, many things may be brought forward for early flowering in the open air; but so far it has been too cold to do this with advantage. In consequence of very little sun, plant-houses do not look so gay with flowers as usual at this period of the winter; and even the plants for want of this, together with an excess of fire heat, look less stocky and robust. Care should be taken, therefore, the first good weather, to air freely,

and harden off this plethoric growth, which will tend to the great benefit of the plants, even to the sacrifice of an early display of flowers.

This month should afford time to look over the whole stock, shifting or top-dressing all that require it, and bringing others forward that have been set aside for rest. Early completion of such work adds to the gayety of the greenhouse and better adornment of the garden in summer.

PELARGONIUMS will now, after a month's cessation of active growth, have acquired a robust and vigorous habit and good root action, which will enable them to maintain a good bloom. Keep them still rather dry and cool, with an abundance of air and a place near the glass; finish repotting all young stock, and tie out specimens so as to form handsome heads.

AZALEAS will now push vigorously; syringe often, water carefully, and shade when the flowers begin to open; tie all plants into some good shape, whether pyramid, conical, or round-headed, and keep in a slightly increased temperature till the flowers expand. Young-growing stock should be repotted.

CAMELLIAS will now be in full bloom: water more liberally, and when they begin to grow syringe very freely at least every day in fine weather: graft and inarch now.

GLOXINIAS AND ACHIMENES should be shaken out of the old earth and freshly potted, placing them in a hotbed, or the warmest part of the house.

AMARYLLISES should be repotted as soon as they begin to grow.

HEATHS should be shifted if they require it; now is the time to put in cuttings.

CINERARIAS will soon begin to bloom; give them an airy situation near the glass, and fumigate often for the green fly.

GLADIOLUS of the ramosus tribe should be repotted this month.

BEGONIAS may now be divided, potted, and placed in the warmest part of the house, watering very sparingly till they begin to grow.

TRITOMAS, repotted now, will bloom earlier and much stronger.

LILIUM GIGANTEUM, as soon as they begin to grow, should be repotted.

RHODODENDRON seeds should be planted.

FERNS of all kinds should now be turned out of the pots, the soil partly shaken off, and repotted in a mixture of peat, leaf mould, fibrous loam and sand.

CALLAS may be repotted.

CUTTINGS of all kinds of bedding plants should now be put in.

SEEDS of Petunias, Asters, Balsams, Stocks, Dianthus Heddeewigi, and similar annuals, now-planted, will furnish a fine stock for early bloom.

NEAPOLITAN VIOLETS in frames, now brought into the house, will make a fine display.

HYACINTHS in frames may now be brought into the house for early bloom.

ORANGE TREES may be grafted.

ORCHIDACEOUS PLANTS, which have been kept rather dry, should now be more freely watered and have more heat.

INSECTS must have attention. Look after the red spider and green fly, and destroy the mealy bug and scale.

THE AMERICAN POMOLOGICAL SOCIETY.

THE eighth session of this Society was held in Philadelphia, September last, as we have already announced to our readers. Reports of the proceedings were published in some of the horticultural and agricultural papers, which were tolerably full and complete; but we have preferred to await the appearance of the published volume of the Society before giving a full review of its labors.

And here we beg to offer our small meed of praise to Mr. Vick, under whose superintendence the present volume has been issued, in conjunction with Mr. Field, the Secretary. The discussions, though still incomplete, are free from the errors of some of the preceding publications. If all that was said is not reported, neither is that reported which was not said; nor have the remarks of one member been reported for those of another. The volume is one every way worthy of the Society.

The attendance of members was large, especially of southern and western cultivators, whose absence was regretted at the previous session. The season, too, was propitious, and the display of fruit was by far the largest and most complete ever made by the Society. In this respect the contrast was very great. Western apples, which, from a variety of causes, have not been brought forward so freely as was expected, were exhibited in large variety and of fine quality. Pears, too, were abundant, and unusually fine. Grapes were rather sparingly shown, owing to the unfavorable season. On the whole, the display was highly satisfactory.

The President opened the meeting with the customary address, which was devoted mainly to native fruits and grape culture. Mr. Wilder continued to urge the production of seedlings, both by the choice of the best varieties and by careful fertilization,—for by the former mode have most of our best American fruits been raised. He also urged the officers and members of the Society to “increased vigilance and cau-

tion in the recommendation of novelties until they have been thoroughly tested by competent judges,"—a timely hint, and deserving of remembrance.

Agreeably to a recommendation of the President in his address, that "no revision of the catalogue embracing fruits for general cultivation be attempted at this meeting," the committee appointed to prepare the order of business reported in concurrence therewith. They also reported that what time was not required to transact the usual business coming before the meeting should be devoted to discussions on the list that promise well. In compliance with this, and to give Western cultivators an opportunity to bring forward their favorite apples, to commence with this fruit, following with the smaller fruits and grapes, and closing with pears, peaches, plums, and cherries.

The business committee also recommend that the Society appoint a committee of pomologists from different sections of the country, who shall meet *ad interim*, and prepare a revised list for general cultivation in the several natural regions or subdivisions of the country. The committee also desired to be indicated that the Society do not wish it understood that all varieties in the list heretofore recommended for general cultivation will certainly succeed in every situation over our extended country. The Society then adjourned to Tuesday, the second day, when the discussion would commence with

APPLES.

BUCKINGHAM.—Pronounced by Dr. Warder the same as the Bunkum of North Carolina, and Winter Queen of Virginia.

FALLAWATER.—Valuable in Pennsylvania, where it is extensively cultivated. Dr. Warder thought it might be stricken from the list.

GENESEE CHIEF.—Dr. Warder thought it large and coarse. Mr. Barry said it was one of the largest apples, and, when ripe, of very superior quality. Harrison, of Pennsylvania, thought it one of the best.

JEFFRIES.—Mr. Hooker thought it one of the finest of apples, and others concurred in this opinion.

KING OF TOMPKINS Co.—Mr. Lyon said its greatest fault

was its size, being too large for market. Mr. Bateham said reports from Ohio are not so favorable. Dr. Warder concurred; thought it ripened too early, and prone to rot.

WINTER SWEET PARADISE.—Messrs. Bateham, Barry, and Saul thought it one of the best sweet apples of the season. Mr. Rutter, of Pennsylvania, thought it inferior, but it appears there are two different sorts cultivated under this name, and the probability is that Mr. Rutter described the wrong sort.

This completed the revision of the list, when proposed additions to it were taken up.

SUMMER SWEET PARADISE.—Pronounced by Messrs. Lyon, Saul, and others excellent, and it was adopted as promising well.

BEN DAVIS.—A Kentucky apple, of medium size, and keeping well, but so little known out of a few localities, that, after some discussion, the variety was withdrawn by Dr. Warder, who proposed it.

FALL WINE.—Mr. C. Downing thought it a pleasant apple, and Mr. Barry a fine one, and it was added to the list.

CANNON PEARMAIN.—Dr. Warder stated that it was an excellent keeper, and could be kept till May, but not of the highest quality. Others thought it only a good apple. It was added to the list.

EARLY JOE.—No objection was made to this fine apple, and it was added to the list.

WILLOW TWIG, also known as James River. A large apple, and one of the best Western market fruits, where it is raised in large quantities for shipment down the Mississippi. A great bearer, not high flavored, but keeps well. Added to the list.

LIMBER TWIG.—Another Western and Southern favorite. An excellent keeper, hardy and productive, but rather dry and spongy in spring. Added to the list.

BONUM, or Magnum Bonum. One of the finest fall apples in North Carolina, where it originated. We have fruited it, and think it a very desirable variety—large and handsome, and with us a winter apple. Added to the list.

STANSILL.—Highly praised by Messrs. Steele and Berck-

mans as an early bearer, and standing any amount of heat. In eating in January. Added to the list.

NEW YORK PIPPIN.—Highly praised by Dr. Warder and others, but as there was doubt in regard to its identity, it was referred to the Committee on Synonyms without a further vote.

ROME BEAUTY.—Considered a very handsome apple, and hence exceedingly popular, though not more than second quality. Passed over.

WHITE PIPPIN.—Mr. Bateham thought it indispensable in a list of twelve winter apples for the West. Its origin and history is unknown, but it is believed to come from the East. Mr. Downing thought it different from the French Pippin. Added to the list.

MEXICO.—This fine old apple was very little known to the members, and passed over.

PRYOR'S RED.—This famous Virginia apple, of which so much has been said, was variously estimated by different cultivators. As it is a popular fruit South and West, it was added to the list.

WINTER QUEEN.—Not known to the members generally, and passed over.

STRODE'S BIRMINGHAM.—Mr. Downing said it was two thirds the size of the Porter, and not half as good. Not recommended.

OHIO PIPPIN.—So little known that it was passed.

BAKER.—Recently introduced to notice in Connecticut, and thought by Mr. Rockwell one of the best apples, keeping until March. The President said he entertained a good opinion of it as a cooking fruit. Passed over.

KESWICK CODLIN.—Generally praised as an excellent cooking apple, and recommended as promising well.

The idea of recommending fruits as promising well that have been universally cultivated from twenty to fifty years, seemed so singular, that Mr. Bateham suggested the necessity of changing the old heading of the list by striking out the word "new," which was carried, so that it now reads, "Varieties that promise well."

RAWLE'S JANET.—A popular and well-known fruit South and West, but not of very high quality. It was not added to the list.

HAWTHORNDKAN.—Messrs. Hovey, Barry, Lyon, Buist, and others thought it a valuable variety for cultivation, bearing early and abundantly, and as a cooking apple very fine. It was not, however, recommended.

MAIDENS' BLUSH.—Similar to the Hawthorndean, and Mr. Barry thought both eminently worthy of culture. Generally a favorite, and it was added to the list.

DYER.—Universally approved of, and unanimously added to the list.

SUMMER QUEEN.—Thought by some an excellent summer apple, and by others good for cooking. It was added to the list.

FATHER ABRAHAM, MOORE'S SWEETING, RIDGE PIPPIN, PRINCELY, and SWEET BELLFLOWER were discussed, but no vote taken.

CURRENTS.

CHERRY.—Messrs. Lyon, Hovey, Downing, and others thought it altogether too sour to entitle it to be kept on the list; but notwithstanding its very general condemnation, it was retained.

FERTILE DE PALLUA, WHITE GONDOUIN, and IMPERIAL JAUNE were added to the list.

BRONZE, IMPERIAL RED, PRINCE ALBERT, ATTRACTOR, and LA HATIVE were discussed, but they were passed over.

STRAWBERRIES.

VICOMTESSE HERICART.—This old sort was considerably praised by some of the members, who thought it fine flavored and productive. But, after discussion, the name was withdrawn.

TRIOMPHE DE GAND.—A long discussion ensued upon this variety. Messrs. Barry and Knox thought it was one of the finest of all strawberries, and we would quote their remarks if we had space, simply for reference two years hence—not because we do not think it a good strawberry, but because we are sure it will not be a popular one. It can only be grown

successfully, as all English strawberries are, by high culture in hills or single stools, and hence will be forgotten, as Keens' Seedling and other superior English varieties have been heretofore. The report does not state that it was added to the list, though it is our impression that it was.

JENNY LIND.—No objection was made to this excellent variety, and it was added to the list.

SCOTT'S SEEDLING elicited an animated debate. Various opinions were entertained respecting it. It was finally passed without taking a vote.

BRIGHTON PINE did not sustain its original reputation. In general it was considered a poor bearer, which is the opinion of most cultivators. Passed over.

MOYAMENSING PINE.—Highly recommended by Mr. Knox, but no members had so regarded it. Passed over.

RASPBERRIES.

ALLEN.—This was placed on the rejected list, by general consent.

KIRTLAND.—Dr. Warder spoke highly of it, but others knew little about it. Passed over.

HORNET.—Messrs. Reed, Barry, and others thought well of this new sort, and it was added to the list.

BELLE DE FONTENAY.—Mr. Barry thought it desirable for amateurs, and the President thought it valuable if rightly managed. Passed over.

DOOLITTLE.—This is an improved variety of the Black raspberry, as it is often called, though in reality a thimbleberry—holding the same relation to the wild berry that the Dorchester does to the wild blackberry. Messrs. Barry and Hooker thought it only improved by cultivation. Mr. Vick stated that Mr. Doolittle obtained it from the fields, and that a superior system of cultivation and raising young plants from the ends of the shoots had given it its character. Mr. C. M. Hovey said that if it was so much better, as was admitted, than the wild one, it ought to have a distinct name, that it might not be mistaken for the common Black Cap, as it is usually called; and it was voted to call it the Doolittle, and recommend it for culture.

GOOSEBERRIES.

The Mountain Seedling and Downing's Seeding were both well spoken of, and recommended as promising well.

GRAPES.

In consequence of the limited information respecting new grapes, it was not deemed advisable to add any varieties as promising well. The discussion would elicit such information as would enable the members to judge of their relative merits.

TAYLOR or BULLITT.—This new Kentucky grape was praised by Messrs. Byam, Eshelman, and Rutter. The latter gentleman thought it equal to any out-door grape.

RAABE.—Mr. Bruce stated that he had found it a perfectly native American grape, the sweetest, perhaps, of American varieties; the cluster small, and early in ripening; similar in size to the Delaware.

CREVELLING.—Has been cultivated for some twenty-five years in the neighborhood of Columbia county, Pennsylvania, and called Columbia Bloom. It is large, oval, less pulp than the Isabella, two weeks earlier, and some think it superior to that old variety.

MAXATAWNY.—Supposed to have originated in Berks county. It is a white grape, with a Malaga appearance, and rather late, not ripening till October 1st.

CLARA.—Contradictory opinions were expressed about this variety. Dr. Grant stated that its leaf shows its foreign character, but that it was as hardy as the Isabella. Mr. Miller, on the contrary, said that his vines were partially winter killed, not having any protection.

TOKALON.—No new information was elicited. With Dr. Grant it ripened well; others had not been so successful.

CLINTON.—Astonishing as it may seem, this grape was highly praised by Messrs. Prince, Miller, and others. The President said it was one of the most vigorous frost grapes he ever saw, which best expresses its quality. A great bearer, and perhaps valuable for wine, but unfit for the table.

MARION.—Dr. Grant stated that it was unfit to eat till touched by frost, and belongs to the Clinton family.

PAULINE.—Mr. Berkman stated that it had been cultivated for fifty years as a wine grape.

ALLEN'S HYBRID.—Nothing especial was known in regard to this new and fine grape, as it has not yet fruited out of Mr. Allen's collection. Those who had seen and tasted it pronounced it one of the very best.

ROGERS' HYBRIDS.—Also unknown, except from specimens of the fruit that had been sent to different gentlemen. The President said Nos. 1, 15, and 19 are the only ones that he could recommend; and he further remarked, that "we ought to be very cautious indeed in recommending new varieties." Mr. Strong said the vines mildewed more than others.

EMILY.—Two varieties have been disseminated for it, one of which is worthless, and the other did not appear to be known to the members.

MASSACHUSETTS WHITE.—Mr. Strong said that the least said about this grape and the less it is cultivated the better, as it is entirely worthless.

NORTON'S VIRGINIA.—Stated by Mr. Prince to be hardy in Massachusetts, and a fine wine grape. It has been found wild in Virginia.

ANNA.—Dr. Grant said that in a week or two, if the weather was favorable, it will be ripe, and is then exceedingly rich and of high flavor. Mr. Harrison said he had fruited it *several years*, though we thought it a new grape. Mr. Reid said it had a hard pulp. Mr. Harrison said it commences to ripen with the Catawba, but is often not fully ripe till after that variety.

ONTARIO.—Mr. Prince thought it would prove to be Union Village. Mr. Miller said the berries were the size of Black Hamburg. Mr. Barry said it had a thick skin, and he thought it worthless. Mr. Salter thought it a good grape, with a skin about as tough as the Isabella, and pulp about the same and a little sweeter. It is a very strong grower. From this discussion, and what we know of the grape from specimens sent to the Massachusetts Horticultural Society, we should have little doubt it was the same as the Union Village. It is handsome in appearance, and if early enough for our climate will be valuable. Of this, however, there is very great doubt.

PEARS.

The discussion upon the revision of the list of varieties recommended as promising well did not elicit much additional information. A few varieties appeared to have some peculiarities, which we enumerate; the others we omit.

BEURRE' HARDY, or STERCKMANS, all concurred in as being one of the best pears.

BEURRE' LANGELIER.—The weight of the testimony was that it was a shy bearer, at least on young trees.

BEURRE' NANTAIS.—A very handsome pear, of good quality; not high flavored, but a handsome-growing tree and great bearer.

CHANCELLOR.—Not handsome in appearance, but large and of excellent quality.

COLLINS.—Stricken from the list, on account of the difficulty of obtaining good healthy trees. The President and Mr. Saul said it would kill any tree upon which it was worked. We are rather surprised at the decision of the meeting. It is a fine pear, and the original tree is a perfect pyramid, forty feet high. It certainly has a tendency to injure or kill the stock on which it is grafted, but yet we have some very fine and vigorous trees.

STERLING.—Pronounced by all a beautiful tree and beautiful pear, and an excellent market fruit.

FONDANTE NOEL was stricken from the list. Right.

HENKEL.—Mr. Reid thought it one of the very finest of orchard pears.

HOSEN SHENCK.—One of the best pears in the Lancaster market, and succeeds well in Indiana.

KIRTLAND.—A good pear, but rots at the core.

LODGE.—One of the finest pears, as good as the Cabot.

VAN ASSCHE.—Mr. Barry thought it one of the largest and handsomest pears we have.

Additions to the list were then called for by the President.

WASHINGTON.—Pronounced one of the best pears brought to the Philadelphia market; always good. It was added to the list.

BEURRE' DE MONTGERON.—Mr. Reid had had it in bearing some time, and liked it well. A good market pear. Adopted.

DOYENNE' ROBIN.—The President and Mr. Barry thought the pear good, but the tree not vigorous. Passed over.

WINDSOR, or SUMMER BELL.—Was considerably discussed, several members thinking it one of the most profitable pears to cultivate for market; but as the object of the Society was only to recommend superior fruits, no vote was taken.

BONNE D'EZEE.—A most excellent pear, but the tendency of the tree to crack, like the Van Mons Leon le Clerc, was considered an objection to it.

UWCHLAN.—A good pear, of medium size, found wild in Chester county, Pennsylvania. It was added to the list.

SELLECK.—Was well spoken of, but too little known to be adopted.

DES NONNES.—A pear of good reputation and many fine qualities, but not sufficiently known.

ST. MENIN, or OMER PACHA.—Mr. Reid and others had fruited it. It resembles the Beurré Hardy, but is four weeks earlier. It was added to the list.

STEVENS'S GENESEE.—This was stricken from the list in 1858, and an effort was made to replace it. The opinion of the meeting was that it had a tendency to crack, and therefore objectionable.

GOLDEN BEURRE' OF BILBOA.—Mr. Field, as well as Mr. Barry, stated that the tree was unhealthy, which is the first time we have ever heard such an objection against it. The President stated very truly that, though not a first-rate pear, it is beautiful in appearance, and takes prizes at our shows. No vote was taken.

The cultivation of pears upon the quince was then taken up. The discussion was brief, and the experience of members very limited. No vote was taken, and no decisive results attained.

This closed the discussion on fruits, and the remainder of the proceedings is occupied with the report of the committee on native fruits, and reports of State committees. The report on fruits will appear in our next number.

At the close of the meeting, resolutions were passed approving of the appointment of a special committee of five to receive the reports of local State committees of five each, whose duty

it shall be to compile from the local catalogues prepared by the local committees, and from the present catalogue of the Society, "full lists of the fruits therein named, properly classified and arranged with due regard to nomenclature and terminology, and to submit the same at the next biennial session for its consideration and action." The President announced the committee, and the meeting then voted to hold the next session in Boston, in 1862.

REMARKS ON FRUIT TREE STOCKS.

BY JAMES HOGG, LL.D., F. R. S.

MR. RIVERS sends us the following article on Fruit Tree Stocks, which he thinks will be interesting to our cultivators. It is from the Gardener's Year Book, by Dr. Hogg, just published. We scarcely need add that the information is highly valuable. The distinctions in stocks are very great, and while some are adapted to certain fruits, others are very prejudicial to them. We all know how inferior are some kinds of quince stocks for the pear.

Dr. Hogg's remarks give us all that is known in reference to the various kinds of stocks, and we can commend them not only to the attention of nurserymen, but to all who cultivate fruits.

The subject of fruit-tree stocks is one with which fruit-growers, and even nurserymen generally, are but very slightly acquainted; and those who have written upon the subject have done so either from very limited experience, or merely as copyists from those who preceded them. When we consider the influence the stock has upon the tree which is grafted on it, and also the influence that the tree in many instances has upon the stock, it seems a matter for surprise that more attention has not been paid to the subject.

In the following remarks it shall be our object to make our readers acquainted with the different sorts of fruit-tree stocks, and the uses to which they are severally applied. There are

sorts which are doubtless new to many, and it is with the view of directing the attention of fruit-growers to these, and to the subject generally, that we have thus gone so minutely into it, believing that much good may result from careful experiment on this interesting department of fruit-tree cultivation.

STOCKS FOR APPLES.

The *Apple* or *Free Stock* is raised from the pips of cider apples, and grows with great vigor; it requires a deep and good loamy soil.

The *Crab* is the hardiest of all stocks, for it grows wild in woods and hedges all over the country. It is, like the preceding, well adapted for orchard trees. It must be recollected that although it is so very hardy, yet when grafted with a delicate sort its hardiness is to a certain extent gone. Thus, a Ribston pippin, grafted in one of the crabs growing in the gravelly clay of Epping Forest, would soon show symptoms of canker.

The *English Paradise* roots very readily at the surface, and thus gets proper food within circumscribed limits, and by its dwarfing properties it soon brings the sort grafted on it into a bearing state. There are many varieties of this stock. The French call it the *Doucin*, and reckon it as the best stock for garden pyramids. A sort of apple called the *Burr Knot*, and which strikes from cuttings, is also a good stock for garden trees.

The *French Paradise*, or *Pomme paradis*, is too tender for open-air cultivation in England. The French gardeners use it for small bushes, or for training *en cordon* along the sides of their garden walks. One shoot only, trained horizontally, is fastened to a piece of iron wire about one foot from the ground, which is supported by iron or oak uprights. This "cordon" is pinched in all summer, and owing to its being near the ground, the fruit is invariably large and handsome. In England, it succeeds well in pots in the orchard-house; and to those inclined to go into something new in gardening, nothing can be thought of more interesting in apple culture than a collection of these pretty little trees in pots. They should be kept under glass almost constantly, or their roots

suffer from cold and wet, and the trees canker, so that it is unfit for open-air culture.

STOCKS FOR PEARS.

The *Wild Pear* stock is well known. It is generally raised from the small perry pears which are grown so largely in Worcestershire and other great orchard districts. It will scarcely be credited that tons of pear pips are annually prepared in Southern Germany, thence exported to France, England, and the United States, and forms quite an article of commerce.

The *Angers Quince* is a very free-growing sort, and one of the best on which to bud the pear. It is, however, a little tender in cold climates, as the early autumn frosts are apt to injure its young shoots, and they sometimes suffer also from late spring frosts.

The *Douai Quince* is, if anything, more robust in its growth, more hardy than the Angers, and an excellent stock for most kinds of pears.

The *Round-leaved Quince* requires a rich deep soil, otherwise pears budded on it do not do well. The worst of all quince stocks is the common *Pear-shaped English Quince*, on which too many pears have been budded, and have lingered through a short life.

The *Mountain Ash*, as a stock for the pear, succeeds in some soils. It is, however, difficult to point out the kind of soil that suits it, so rarely does it succeed. It does very well on rocky soil, or moist shelving steps, where there is not sufficient soil to plant the pear.

The *White Thorn* is in nearly the same category for a stock as the Mountain Ash, but very few pears succeed in it. That very fine pear, Josephine de Malines, does, however, in gravelly soils unfavorable to the pear or the quince, and Passe Colmar grows very freely on it in hard calcareous clay. Like the quince, it pushes the tree quickly into a bearing state. Another variety—*Reine des Paires*—succeeded admirably on the White Thorn, and one of the handsomest and productive pyramids of this variety is growing on that stock, and is now twenty-five or thirty years old, and not more than fourteen feet high, never having been root-pruned.

Pyrus Pollverii is also an excellent dwarfing stock, and forms a clean and even junction with any of the varieties; but the great difficulty with it is its propagation, which can only be done to any extent by seeds. It will grow from layers, but the process is too tardy, and the quantity obtained too small.

STOCKS FOR CHERRIES.

The *Common* or *Black Cherry* or *Gean* is the kind of stock commonly used, and although the *Hertfordshire* or *Common Black*, which grows wild in the woods of that and several other counties, is so different from the *Red Gean*, yet, as stocks, they are not distinguishable. This is what in some counties is called the *Mazzard* or *Merrie*, and is the *Cerasus sylvestris*, from which all the sweet cherries originate, the kind of stock used for orchard trees, and for all the *Bigarreau* and *Heart* varieties of cherries.

The *Mahaleb* is employed largely on the Continent, but is not much used by English nurserymen. It is an excellent stock on which to graft the *Duke*, *Morello*, and *Kentish* cherries, and will flourish on thin, calcareous, sandy soils, or even on the hard calcareous clays, where the cherry on the common stock would not exist.

The *Kirsch* is the sort so largely planted in Germany for *Kirchenwasser*, and will grow in soils which are almost blowing sands. It is the *Cerasus vulgaris*, from which the acid cherries originate. Although it reproduces itself from seed, and forms a fair-sized tree, miles of which may be seen planted for avenues in Northern Germany, it acts as a dwarfing stock.

Before giving the names of stocks employed in the cultivation of the larger kinds of stone fruits, it will perhaps be as well to give a detailed list of the sorts of Plums employed for stocks, and then to state the sorts of fruit they are best adapted for. They are as follows:—

1. Beef Plum: 2. Black Damask: 3. Brompton: 4. Brussels: 5. Common Plum: 6. Mirabelle Petite: 7. Muscle: 8. Pear Plum: 9. Pershore Plum: 10. Quetsche: 11. Red Cherry, (Mirabolan of the French): 12. Yellow Cherry, (Mirabelle of the Belgians): 13. Saint Catherine: 14. The Sloe.

STOCKS FOR APRICOTS.

The Common Moorpark (for there are several varieties) grows freely on the Muscle stock, as do the common kinds of apricots, such as the Breda, Blenheim, Orange, and also the Kaisha. The Peach apricot, although nearly related to the Moorpark, refuses to grow on this stock, but succeeds perfectly on the Black Damask, Brompton, and pretty well on the Brussels. The Saint Catherine is an excellent stock for all kinds of apricots, as is also the Pershore Plum; and in the United States, peach stocks raised from peach stones are used as stocks for apricots, inducing very early fruitfulness in the trees, which are however short-lived.

STOCKS FOR PEACHES AND NECTARINES.

The *Muscle* is more extensively employed in England in the cultivation of peaches and nectarines than any other. All the hardy sorts of peaches, such as the Royal George, Noblesse, Barrington, Acton Scot, Early York, Violette, Hative, Walburton Admirable, and many others, succeed on it to perfection. The "French peaches," as they are called by the nurserymen, i. e., such sorts as the Grosse Mignonne, Bellegarde, Chancellor, and others, which are now known to be synonyms of some of the above, used in old-fashioned times to be budded on to the Pear plum, a stock which in most soils was short-lived, owing to the bud swelling much more rapidly than the stock. The *Brompton* is more employed for these peaches both for standards and dwarfs, and although greatly abused by Lindley in his "Guide to the Orchard," it is a lasting and good stock in rich deep loams; but in sandy or poor calcareous soils, it is apt to gum and canker.

The best stock known for all the French peaches is the *Black Damask*.

Nearly all the nectarines succeed well on the Muscle stock; the exceptions in some soils are the Balgowan and Imperatrice.

In the southern districts of France, the *Almond* is the stock usually employed for the peach, the summers being too hot and dry for plum stocks; the peach stock is also used, but not so generally as the almond. The latter is almost the only stock employed by the American orchardists in the United

States; it is not so hardy as the almond, and liable to the "yellows," a disease under which the leaves of the peach turn yellow, the shoots become feeble, and the tree dies.

In England, neither the almond nor the peach can be recommended as stocks for open-air cultivation, unless in very dry soils in the extreme southern counties, where the peach on the plum stock refuses to grow.

STOCKS FOR PLUMS.

All the varieties of plums will succeed more or less on all the plum stocks above enumerated. It is, however, good policy to graft the downy-shooted kinds in the *Brussels* and *Beef Plum*, both of which have downy shoots. The latter is a stock peculiar to the vale of Evesham, and a more vigorous grower than the former. The Orleans, Victoria, Prince of Wales, and the other kinds with downy shoots do well in those stocks.

The *Common Plum* (or Commoner, as it is called in Surrey) is a stock as extensively employed for plums as the Muscle plum is for peaches and nectarines. The *Mirabelle Petite*, or *Mirabelle de Metz*, is the small yellow plum so extensively grown in France for culinary uses. It reproduces itself from its stones, and, as it is very dwarf, may be employed by the curious to form very dwarf bushes. The *Red Cherry* (*Prunus cerasifera*) plum is raised from seed extensively in France, and used for the Green Gage (or Reine Claude, as the French call them) class for very light, sandy soils, as in like manner the Yellow Cherry, falsely called *Mirabelle* in Belgium, is employed there in some districts in the light barren soils not only for plums, but for peaches and apricots. This sort is not raised from seed, but from cuttings, which on light siliceous soils takes root freely. In our moist climate this stock is too vigorous and suffers from late spring frosts.

The *Quetsche Plum*, which is raised from stones imported from Germany, is a very hardy, valuable stock; all the varieties of plums succeed perfectly on it.

In districts favorable to the growth of the *Sloe* (*Prunus spinosa*), it may be employed as a stock, as it will flourish in soils unfavorable to plum stocks. It acts as a dwarfing stock,

and the plums grafted on it soon become fruitful bushes, even in hard clayey soils. It is, however, a difficult stock to manage, as neither grafts nor buds take readily.

The *Pershire Plum* is a variety the fruit of which is like the White Magnum Bonum, a little more perhaps than half its size when grown, as it generally is, without being thinned.

The gardens in the vale of Evesham and about Pershire are crowded with this sort, and thousands of bushels are sent off weekly in August and September from Evesham and Pershire per rail to the North. Very recently it has been found to be valuable for dyeing when in a green state, which has led to an increased demand for the fruit. It is raised from suckers or root shoots, and seldom or never grafted. The trees are exposed in the markets during the autumn and spring, and are sold by the thousand. A landed proprietor near Pershire intends this season to make a plantation of 10,000, feeling confident that the demand for the fruit will be constant and increasing.

FRUIT CULTURE IN BELGIUM.

BY J. DE JONGHE, BRUSSELS.

I received, a short time since, the Magazine of Horticulture for July, in which you have made mention of La Constante strawberry. I thank you for your attention in forwarding me the Magazine, and am glad to perceive that this variety of my seedlings has succeeded with you as it has in all other places. It is this which proves its real merit.

You have, with much candor, spoken of its origin. Mr. Prince, in his Catalogue sent me, has described it as a new French variety, "valuable for amateurs." Indeed!

I had no knowledge of what you had written in 1838, relative to what should be the merits of a choice strawberry. The ideas which I have received have been the results of my personal observations in studying the numerous varieties that have been cultivated in my collection. It is in the study of fruit trees and other species that I have established the conditions of perfection. These ideas have served to guide me

in the choice of new varieties, that are yearly produced among my numerous seedlings, which you have already alluded to.

Referring again for a moment to the strawberry. At the end of your article, (Vol. XXVI., p. 347), you say, "several varieties fruited which received the approbation of the Horticultural Society and pomologists." This is a compliment to the intelligence of your Society. Permit me to doubt not that the compliment was the expression of your sincere thoughts. In fact, you well know that it is the grower and the cultivator who know best the qualities and the defects of a new production. It takes time and numerous experiments in order to study and to know them well. Here is the conclusion of the report of the Society: "None of the foreign sorts rank high when compared with the best American varieties." This is again a compliment addressed by the Society to the American cultivator. In my opinion, it is not with compliments that we can establish a pomological fact. There are certainly not four varieties enumerated which eclipse, in all respects, *La Constante*. If you are not already convinced of this, you need not wait another year to share in this opinion. In this case the Society could not be sufficiently informed to arrive at a conclusion so plain, an expression not patriotic, which has been pushed too far. The coming year they will be ready to admit that it can be recommended for extensive cultivation. I will add my experience:—In the month of April last, I prepared in the nursery a large square of 20 yards in length by 30 feet in width. I planted it with 300 plants of *La Constante*. I gathered from the same ground 108 kilogrammes of fruit from the 15th of June to the 20th of July. The fruit was sold for from eighty centimes to one franc twenty-five centimes the kilogramme (2 lbs.) The result has produced in all 117 francs. About the 16th to the 20th of last month, (July), one third of the plants had begun to bloom again, and at the present time (Aug. 6) the flower stems are strong, presenting seven, eight to twelve berries, having attained one quarter to one third of their size. If the temperature remains favorable, with a heat of 12 to 15° (Reaumer), I count upon having a second crop towards the latter part of September.

This peculiarity has not been remarked in La Constante. Is this the consequence of too late planting, or the variations of temperature during the summer? I cannot answer this question. I should remark that the plantation is made in a cold, damp soil. Yet the fruit has preserved nearly all its qualities. This plantation was made expressly with a view to obtain strong plants in the autumn for supplying my numerous customers.

Plant La Constante in a warm soil and a favorable exposure, you can gather beautiful fruit about the commencement of June. In a colder soil, about ten days later, or towards the end of the month. In a strong soil and in a shady situation, the fruit ripens in July. In a soil strong and cool, *the plant* shows all its qualities—dwarf habit, flower stems strong and robust. In a warm soil and with a good exposure, *the fruit* shows all its qualities. It ripens in succession, and it obtains its normal form; this again is an important point.

Among my seedlings raised in 1857, I remarked in June and July of 1859 and 1860, a certain number which I have noted. These new and distinctive varieties, which I have thought would prove indispensable, have been named, and will soon be offered to cultivators.

It is in this way that I proceed with my fruit trees. But the study of them is much longer.

I have obtained a variety of cherry, to which I have given the name of Transparent. It belongs to this family, the best of all the cherries. A beautiful tree, distinct, hardy, productive, large and beautiful fruit and of excellent flavor, growing freely upon the Mahaleb stock. In its genus I consider this variety as a precious acquisition.

I have two apricots suitable for orchards. 03 has a sweet kernel, fruit large, very beautiful, tree superb. It is twenty years old. In 1856 it bore 1500 fruits; in 1857, 2000; in 1858, 3000 or less; in 1859, 300, and in 1860 about 1000.

010. A large fruit, has a bitter kernel, excellent quality. The tree is not so productive as the other, and the fruit does not so well resist high winds.

BEZI MAI pear. See the description in the Gard. Chronicle of February, 1860, (which we have copied, see Vol. XXVI., p. 153,) very exact.

BERGAMOT D'ARNE, LEOPOLD RICHE, (end of December.)

PRINCE CAMILLE, (Dec.) DOYENNE' BASSINER, (March.)

The descriptions will appear in the Gard. Chronicle in the autumn, or during the winter. All these varieties have been fully proved in the nursery. The trees have produced from 50 to 200 and 300 fruits. These fruits have obtained the first prize whenever they have been offered at the exhibitions here, in France, in England, and in Germany.

BRUXELLES, Sept., 1860.

We are highly pleased in presenting to our readers the above article by M. de Jonghe, one of the best Belgian pomologists, and the originator of some of our best fruits. His letter should have appeared some time ago, but the translation of some technical terms caused a delay. It will lose none of its interest for the delay. We hope to have the pleasure of welcoming other contributions from M. de Jonghe in our pages.—ED.

POMOLOGICAL GOSSIP.

THE NATIVE FRUITS OF AMERICA.—Our correspondent, Mr. Rivers, of Sawbridgeworth, sends us the following interesting notes relating to the native fruits of America. During the severe cold weather in December last, he found leisure to look over Lewis and Clarke's Travels in America, and from these has made several extracts in regard to our wild fruits. "How rich you are," he writes us, "in such things, and how little advantage seems to have been taken of such riches!" Yours is indeed the "land of the vine, offering a great contrast to Europe, in which the grape has never been found wild, and yet it is now the land of wine." We doubt not our cultivators will appreciate Mr. Rivers's labors, and some useful results arise therefrom.

I have lately been interested in finding in "Lewis and Clarke's Travels across the American Continent, 1804-5 and 6," published by Longman & Co., London, 1817, in three volumes, the following notices of your native fruits, and have felt some surprise that they have not been brought into cultivation and improved by American gardeners, for surely they must be susceptible of improvement; so let us hope that we shall yet hear of their being brought into notice.

VOL. I., p. 17. On the banks of the Missouri they found "grapes and other fruits, among which is the Osage plum, of a superior size and quality."

Page 21. "Along the shores are gooseberries and raspberries in great abundance."

Page 34. "The wild cherry of the Missouri is like our own, but larger, and growing on a small bush."

Page 67. "We also procured an excellent fruit resembling a red currant, growing on a shrub like a privet."

Page 69. "There is a fruit now ripe which looks like a currant, except that it is double the size, and grows on a bush like a privet; the size of a damson, and of a delicious flavor."

Page 74. "Here we gathered some delicious plums, grapes, and blue currants."

Page 75. "We have great quantities of grapes, and plums of three kinds, two of a yellow color, and distinguished by one of the species being longer than the other; a third, round and red—all of excellent flavor."

Page 89. "This week has obtained the name of plum week, from the number of that fruit which are in that neighborhood, and of a delightful quality."

Page 372. "There is a species of gooseberries growing abundantly among the rocks on the sides of the cliffs; it is now ripe, of a pale red color."

VOL. II., page 7. "There are also great quantities of red, purple, yellow, and black currants. The currants are very pleasant to the taste, and much preferable to those of our common garden; the fruit is not so acid, and has a more agreeable flavor."

Page 8. "The service-berry differs from those of the United States; bushes small, not more than two feet high, and

rarely exceed eight inches. The fruit is of a very dark purple. They are now (July 17th) ripe and in great perfection."

Page 15. A black currant, "the flavor of which is preferable to that of the yellow, and would be deemed inferior to that of any currant in the United States."

Page 40. A black gooseberry, "as large as the common garden gooseberry, and black as jet."

Vol. III., page 2. "A thistle, with an edible root about the size of a man's thumb; its taste is exactly that of sugar, and it is indeed the sweetest vegetable employed by the Indians."

Page 350. "Captain Clarke found to-day a species of cherry which he had never seen before." This was near the confluence "of the Yellow Stone river and the Missouri."

Page 375. Plums of three species are found; and

Page 376. "We made an excursion to a large orchard of delicious plums."

All the above fruits were found on the banks of the Missouri. Some of them appear as if they could be improved by culture; the question is, have they been noticed by modern cultivators, and if any have been hybridized so as to improve them?—I am, dear sir, yours very truly, THOS. RIVERS, Rose Hill, Sawbridgeworth, England.

GOVERNOR CHARTER'S SEEDLING APPLE.—A new variety, described in the *Prairie Farmer* as a medium-sized apple, slightly and in some instances quite conical, occasionally ribbed. Color, light yellow, with bright blush in the sun, covered with well defined yellowish specks; stem, short, slender, deeply set in a regular cavity, sometimes russeted; calyx, closed; basin, moderately deep, slightly furrowed, open; flesh, white, cuts firmly, fine, tender, pleasant, juicy, scarcely acid, and slightly aromatic; core, small, fleshy; seeds, plump, small, dark brown, ovate, roundish. In eating the last of October. The beauty as well as the quality of the fruit is commended to the attention of orchardists as a market fruit. It is sought for in the market where known, and it is hardy and productive.

VAN BUREN'S GOLDEN DWARF PEACH.—A new variety, raised by Mr. Van Buren, nurseryman, of Georgia, who sent an account of it to the editor of the *Gardener's Monthly*, who

thinks it "so decided an acquisition" that he gives his description of it: "Enclosed I send you a drawing of a new seedling peach of my own raising, which I think will prove to be a valuable variety. The tree is dwarf, is now four years old, and but twenty-eight inches high to the topmost leaf; has small flowers. The drawing sent is the exact size of an ordinary specimen, for I made the measurement. The fruit is a clingstone, and of first-rate flavor. I think it will be invaluable in the cold climate of the North, where the buds get winter killed, for cultivation in small lots and gardens in cities and towns, as well as for border walks, for it is truly a beautiful sight to look at these miniature trees, with their golden and carmine fruit."

We think we can say, with Mr. Van Buren, it will be a valuable variety, not so much perhaps for the fruit, which is a clingstone, but as the parent of a new race of *dwarf* peach trees with free stones. On this account alone we trust it will attract the attention of nurserymen who should attempt the growth of new seedlings from it. Trees of the size of Mr. Van Buren's seedling could be easily protected with straw, or even wholly covered up, thus insuring them against the severity of our winters, which, like the one just past, destroy all the flower buds. Mr. Van Buren says that last spring, while every peach bud on his grounds having small flowers was killed by frost, he saved this by inverting over it a three-bushel basket, and throwing on a horse blanket. Last year was the second year of its bearing. It only grows three or four inches a year.

ARBORICULTURAL NOTICES.

NEW CONIFEROUS TREES FROM JAPAN.—In our last number we gave an account of the vegetation of Japan, furnished by Mr. J. G. Veitch, who travelled through a portion of that country, and in localities where no foreigner had ever before been. Since that account was published, Mr. Veitch has sent home seeds and dried specimens of the coniferous trees he discovered, several of which prove to be entirely new and

heretofore undescribed, and others exceedingly rare. Dr. Lindley, to whom the specimens were submitted, has named and described the several species. To these descriptions we have annexed what information Mr. Veitch supplies in his letters in relation to their habits, growth, &c., from which their comparative hardiness may be inferred. We have no doubt a portion of them will prove as hardy as our native species, and hence possess great value to American planters. Their introduction will be hailed with the liveliest pleasure, and lead to the hope that further explorations will achieve further and equally important results.

SCIADOPITYS VERTICILLATA *Zuccarini*. Kanagawa. Tree, 120 to 140 feet. Habit, pyramidal, distinct, and fine. J. G. V.

This is, perhaps, the most remarkable coniferous plant yet described. It is erroneously described by Siebold as a mere bush, twelve to fifteen feet high. It has stout *whorled*, yellowish green leaves, resembling that of an ordinary cedar, related to *Washingtonia* as this is. Its name is derived from two Greek words signifying a parasol and a fir tree; its spreading whorled leaves looking like the ribs of a tiny parasol. Judging from Mr. Veitch's specimens, it must be a plant of extraordinary beauty.

Mr. Veitch states that "*Sciadopitys verticillata* and *Cryptomeria japonica* are certainly the finest conifers I have met with. The former (*Sciadopitys*) is apparently very scarce. I have as yet found but ten or twelve trees in this neighborhood. It assumes a pyramidal habit, and retains the same form when a tree of one hundred to one hundred and thirty feet, clothed to the bottom with branches. This tree is certain to be appreciated at home, and will doubtless prove hardy" [in Great Britain].

ABIES MICROSPERMA. *Lindley*. Leaves, ten lines long, three quarters of an inch wide; cones, two and a quarter inches long, pale cinnamon color, two and a half inches round; seeds, pale cinnamon, one line; wing, two inches long, nearly ovate, and occasionally notched. Hakodadi. Tree, 40 to 50 feet high; under side of the foliage very glaucous. Its foliage resembles spruce in point of color, but the leaves are *æ* long as *Abies amabilis*, and perfectly silvered underneath. 1

saw numbers of trees, but found only two solitary cones. The quantity of seed you receive will therefore be very small. J. G. V.

A beautiful thing, quite unlike any other spruce, with slender, delicately toothed cones, as broad at one end as the other, and the smallest seeds of the genus.

ABIES LEPTOLEPIS? *Zuccarini*. Mount Fusi Yama. Tree, 40 feet. The tree which grows at the highest elevation on the mountain, 8,500 feet. J. G. V.

As this was found growing with the common larch, near almost perpetual snow, it will undoubtedly be quite hardy in the United States.

ABIES TSUGA. *Zuccarini*. Mount Fusi Yama. Tree, 100 feet. Trees are much used by the Japanese. 6,000 feet. J. G. V.

A kind of Hemlock spruce, much like that plant, and growing twenty-five feet high. Its wood is described as excellent, yellowish brown, and employed for the manufacture of various small ware articles.

This species was also found at an elevation of 6,000 feet, growing just below the larch, and in company with the oak, lime, beech, &c., and undoubtedly hardy.

ABIES VEITCHII. *Lindley*. Leaves, varying in length six to twelve lines, three quarters of a line broad; cones, two and a quarter to two and three quarters inches in circumference; seeds, testaceous, two lines long; wing, blackish, two lines long, with a very narrow curved crest at the base of the wing.

Mount Fusi Yama. Tree 120 to 140 feet high, between *A. nobilis* and *A. Nordmanniana*. J. G. V.

This most remarkable species looks like a small-coned Silver fir, and is wholly different from anything previously described. I have named it after Mr. J. G. Veitch, whose great merit, as a very energetic explorer of the vegetation of Japan, it gracefully records. As to the pine called by the same name by Mr. Roedel, whether or not it is the same as *P. Bonaparteae*, as the writer of the *Pinetum* surmises, is unimportant, since names so published can have no place in systematical botany.

ABIES ALCOQUIANA. *J. G. Veitch in litt.* Leaves, six inches long, half an inch wide; cones, rather more than two inches long, four inches in circumference; seeds, cinnamon-colored, two lines; ring, four lines long.

Mount Fusi Yama. Tree 100 to 120 feet. Wood used for light house work. 6,000 to 7,000 feet.

A noble spruce fir, in some respects resembling the *Abies polita* of *Zuccarini*, from which it differs in having much smaller cones, with scales of a different form, very small, leaves glaucous on the under side, blunt or emarginate, not mucronate, and flat, not four-sided. Named in compliment to Rutherford Alcock, Esq., H. M. Minister at the Court of Jeddo, to whose kind protection and assistance Mr. Veitch has been greatly indebted.

Probably hardy, from the very high elevation at which it was found growing.

THUJOPSIS DOLABRATA *Zuccarini*. Hakodadi. Tree, 40 to 50 feet. Habit, drooping; prefers shady places. J. G. V.

A very few plants of this glorious evergreen tree have already been raised in Europe from cuttings taken from one or two imported specimens; and now we shall have seedlings, Mr. Veitch having been so fortunate as to meet with the tree just when the cones were ripened. The tree looks like a huge arbor-vitæ, with magnified leaves of a black-green color, glaucous beneath. The wood is excellent, the aspect of the plant superb.

All who have seen the beautiful *Thujopsis borealis* can appreciate the above description, though the *T. dolabrata* is still more beautiful. That it will prove hardy there can be little doubt; and if so, what a treasure to our gardens. Mr. Veitch says it appears to prefer shady situations, the foliage being more luxuriant than when exposed to the sun. It may, however, be guaranteed as being perfectly hardy. It grows where snow covers the ground for five months together, and where the thermometer is often below zero. At Messima, on the route to Mount Fusi Yama, the woods were composed of this *Thujopsis*, which were among the finest trees.

In the Temple Gardens, at Omce, Mr. Veitch saw specimens of *THUJOPSIS DOLABRATA VARIEGATA*, though it is not

enumerated in this list. Probably we shall have an account of it hereafter.

TORREYA NUCIFERA *Zuccarini*. Kanagawa. Tree, 20 feet. Foliage, sharp. J. G. V.

The specimens sent home are identical with those in our herbarium from Zuccarini himself.

CEPHALOTAXUS DRAPA'CEA *Siebold*. Kanagawa. Tree, 20 to 30 feet. J. G. V.

Mr. Veitch's specimens are, however, very much more glaucous on the under side of the leaves than the plants now in cultivation.

JUNIPERUS RIGIDA *Siebold*. Atame. Tree, 12 to 15 feet. J. G. V.

The specimens sent home have the leaves very narrow, exactly like the figure in the *Flora Japonica*.

CRYPTOMERIA JAPONICA.—Mr. Veitch speaks in raptures of this tree. The approach to Hakone was lined by one of the most magnificent avenues he ever beheld. It consisted entirely of *Cryptomeria*, the trunk of every tree as straight as an arrow, averaging 130 to 150 feet high, by 13 to 15 feet in circumference. On the road from Messima to Atame, he states that he met with three noble specimens standing singly in the midst of a small village, about 170 feet high, and 16 feet 6 inches in circumference at three feet from the ground. Near Atame he passed a forest remarkable for the peculiar straight trunks of the trees. They had grown in close proximity to each other, and consequently had lost the greater portion of their branches. The effect produced was very similar to that of an immense number of ships' masts. Mount Hakone, 7000 feet in elevation, is clothed to the top with dense forests of *Cryptomeria*, *Thujopsis dolabrata*, &c. With so much beauty, it must claim particular attention south of Philadelphia, where it is never injured by the winter.

WASHINGTONIA GIGANTEA. This fine tree stood the severe test of the late cold weather in Great Britain without injury, while the *Cryptomeria* and others heretofore thought quite hardy were badly cut up. Such experience warrants a full trial of it in our climate. We think it suffers more from sun than frost.

STUARTIA PENTAGYNIA.

BY MESSRS. PARSONS & CO., FLUSHING, L. I.

AMONG the many fine species of ornamental trees and shrubs which Parsons & Co. have collected at their grounds at Flushing, L. I., none have excited more admiration than the *Stuartia pentagynia*, of which we have the pleasure of presenting a drawing taken on the spot, from a specimen fifteen years old.

This *Stuartia*, according to Loudon's *Arboretum*, is a shrub well known in collections of American plants, the largest specimens being at Dropmore and White Knights, where, in 1834, they had formed wide spreading bushes ten to twelve feet high, flowering freely every year. These flowers are large and slightly fragrant, and when in bloom, during the months of August and September, have a magnificent appearance. How it should have been so long overlooked by American planters is rather surprising.

A shrub belonging to the *Camellia* tribe could not otherwise than be beautiful, and the flowers of the *Stuartia* somewhat resemble the single white *camellia*. It is a native of the mountainous regions of Virginia, Carolina, and Georgia, and was sent to England as early as 1795. Yet it is so rare in our gardens that scarcely a dozen specimens are to be found.

Loudon classes it under the name of *Malachodendron*, a genus separated from *Stuartia* by *Cavanilles*, and in Don's *Miller* it is called *Malachodendron ovatum*, but as the distinctions are very minute, the name of *Stuartia*, from its brevity, will probably obtain in general use.

Messrs. Parsons & Co. have sent us the following account of their plant, and also engravings of the tree and the flower, which will better convey an idea of its beauty than any extended description. That it is quite hardy, there can be no doubt. It grows with the *Fringe* tree, one of our very hardiest shrubs, and its introduction into our gardens will add to their autumnal beauty, flowering, as the *Stuartia* does, at that season. For planting in American gardens, so called, with

Azaleas, Rhododendrons, Kalmias, &c., which like a peaty soil, it will be a decided acquisition, enriching the masses of evergreen foliage at the close of summer with its profusion of large, showy, and slightly fragrant white blossoms.—Ed.



10. STUARTIA PENTAGYNIA.

American plants occupy a high place in general esteem in Europe, and those who have visited England know how fresh in winter and brilliant in summer the parks and gardens are made by our own Rhododendrons, Azaleas, and Kalmias. The *Stuartia*, when well known, will occupy a high rank.

The branches of the tree, from which our drawing is taken, (FIG. 10), commence about a foot from the ground and form

a round, compact mass of foliage ten feet in height and about ten feet in diameter. It is especially valuable for its late blooming. The last of summer, when but few plants comparatively are in bloom, this bush or tree is uniformly loaded



11. FLOWER OF THE STUARTIA SLIGHTLY REDUCED IN SIZE.

with large white flowers, two and a half inches or more in diameter, saucer-shaped, and the edges of the petals crimped. An excellent drawing of the flower, reduced in size, is shown above, (FIG. 11.)

It has a general resemblance to the flower of the Magnolia,

and must rank with it in beauty. It will probably reach a height of fifteen feet. Young plants often make a growth of two feet in a year. It will grow in any good soil, is perfectly hardy, and suitable for any locality. Its great scarcity has kept it out of the general knowledge, and it is only within a few years that it has been cultivated in any quantity.

Being of moderate size, the proper place for the *Stuartia* will be near the dwelling, where its symmetrical habit and showy flowers can be seen in their beauty.

It has been sometimes called a *Malachodendron*, but the description given by Pursh is not sufficiently distinct to separate it from the *Stuartia*.

There is another variety, the *Stuartia virginica*, which does not bloom as freely as this, and is somewhat tender.

FORCING ROSES AND LILACS.

FROM THE GARDENERS' CHRONICLE.

THE French are clever cultivators. They understand the art of gardening thoroughly, and they turn their knowledge to good account. Just now white lilacs and roses are all the fashion for cut flowers or bouquets, and one cultivator, M. Laurent, of Paris, has been astonishing the Parisians with his lavish display of these fragrant and showy flowers. We copy the following from the *Gardeners' Chronicle*. It will be seen by this what are the best roses for forcing, and our cultivators can safely make their selections from this list. As to white lilacs, though apparently easily produced, their growth is attended with considerable trouble. Our flower dealers may profit by the hints:—

A short time since mention was made in the *Gardeners' Chronicle* of a method of forcing purple lilacs to bear white flowers in winter by growing them in the dark. We have now before us two reports upon this curious subject by M. Duchartre, from which we condense what follows. It appears that the inventor of this method is M. Laurent, Sen., a Paris

gardener living at No. 88 Rue de Lourcine, who has been astonishing the world of fashion by his magnificent winter bouquets, or rather sheaves of roses and white lilacs, which had all the freshness and fragrance of spring, and which he continued to produce from December 22 to March 22.

The establishment in which this work is carried on is of considerable extent. There are twenty glasshouses, each of which, if a lean-to, as is usually the case, is five or six yards wide, and slopes to the south. Sixteen of these houses are heated with hot water; four are not heated at all. Altogether they are more than two thousand yards long. The interior consists of two unequal beds with planked sides, sloped to correspond with the slope of the roof, and about a yard off it, with three very narrow paths. Twelve thousand roses are planted in the beds; twenty thousand more are kept in pots for the convenience of sale; and there is still a reserve of twenty thousand, besides which he forces fifteen thousand lilacs.

He begins forcing roses on the 15th September; has them in flower by the 4th November, and continues to take a crop of flowers till May. From fifty to sixty bouquets of twelve roses each are sent daily to the flower market; the pot roses are used in the decoration of balls and grand entertainments. For cutting, his long experience has taught him that no sorts are equal to *Souvenir de la Malmaison*, *Gloire de Dijon*, *Saffrano*, *Lamarque*, *Canari*, *Mrs. Bosanquet*, *Cramoisi supérieur*, *Baronne Prévost*, *Louise Peyronnet*, *Auguste Mie*, and *La Reine*, according to the reporter to the Imperial Horticultural Society; and for pot cultivation, *Rose du Roi*, *Quatre saisons*, *Mousseux la Reine*, *Baronne Prévost*, *Aimé Vibert*, *Madame Hardy*, and *Céline Dubois*. It is important to add that many roses are totally unfit for forcing, among which is *General Jacqueminot*. M. Duchartre adds *Jules Margottin*, *Laffay*, *Jacques Lafitte*, *Triomphe de l'Exposition*, *Berceau imperial*, and a few others as good sorts, and states that the *Souvenir de la Reine d'Angleterre*, with the three *Teas*, *Lamarque*, *Canari*, and *Saffrano*, are most especially valuable.

As to lilacs, it has been found by experience that while that called *de Marley* is blanched without difficulty as well as

Charles X., the Persian sorts will not blanch at all. Of the first we are assured that bunches are produced more than eight inches long, broad in proportion, and perfect in form; and so strongly are they grown that such bunches with their ends in water will keep in a warm sitting-room for several days without undergoing any appreciable change.

Concerning the manner in which the blanching operation is managed, M. Duchartre gives a very clear account. It seems that the great point to attend to is not to interfere with the usual method of forcing until the flowers are preparing to open. It is well known that their corolla, however deeply it may be colored eventually, remains colorless so long as it is enclosed in the calyx, or even longer; but that as soon as it begins to expand, its colors are rapidly developed, *if exposed to sunlight*. This must therefore be prevented by transferring the lilacs to a dark place before there is any sign of their opening. But in doing this there is the risk of rendering the leaves and green parts yellow, weak, and flaccid. Here a well-known fact in vegetable physiology is turned to account. The green color of leaves and other parts is caused by the presence in their tissue of a resinous grumous substance called Chlorophyl, which rapidly acquires its color even in very weak light; on the other hand the matter which gives the blue, red, and violet tints to flowers is a fluid which will not easily lose its primitive whiteness. Here lies M. Laurent's secret. He sinks his lilacs a yard deep in the open border of a house facing the north, and therefore cut off from every ray of sunshine. For, as long as is necessary to open the leaf-buds and to bring on the production of bunches of flowers, he keeps his plants in the diffused light of such a situation, at the same time forcing them as hard as he can. Weak as the light must necessarily be, it is sufficient for the formation of Chlorophyl in the green parts, and consequently to give them the necessary solidity. They are then of the pale green of leaves unfolding naturally in the spring. This is the first stage of growth.

When the lilacs are ready to spread open their bunches of flowers, they are placed in almost constant darkness by means of wooden shutters painted with tar; the forcing tem-

perature still being kept up. But a shutter is taken off here and there for a few hours each day, and the feeble light thus admitted is found to preserve the greenness of the leaves without causing the flowers to color. And we are assured that nothing can exceed the pure white of the flowers or the rich green of the leaves thus produced. It would therefore seem that the absence of light was the sole cause of blanching the lilac flowers; but M. Duchartre suggests, with much reason, that the great heat of Mr. Laurent's forcing-houses has something to do with it, by preventing the formation of the coloring matter of the lilac. In fact he found, in the middle of March, in the establishment of M. Berthelot, nurseryman, 42 Rue des Fossés St. Marcel, small plants of the purple Charles X. lilac producing bunches of white flowers in a perfectly bright house where the heat was kept very high. In this case the cultivation was the reverse of M. Laurent's, and yet the result was the same. He also suggests that another very powerful agent in the blanching process is in both cases the exclusion of air. It seems that these French forcing-houses are not ventilated. And M. Berthelot states that when a square of glass in his house is broken or cracked the flowers next the aperture immediately become colored.

One circumstance attending the blanched lilacs of M. Laurent is not a little remarkable; when they are once cut they are insensible to the action of either light or air, and never gain color.

Of course the length of time required to force them depends upon the time of year. The nearer they are to the natural time of opening the more quickly they expand. Thus in November they require some days more than in January, and in January more than in February and March. Fourteen days seem to be the average.

FLORICULTURAL NOTICES.

CYCLAMENS.—Few plants add more to the gaiety of the greenhouse than the cyclamen. Easily cultivated, and bloom-

ing for a long period, their masses of white, blush, pink, or crimson flowers are always attractive and interesting. We have now in flower all the varieties that have been introduced, comprising some eight or ten, and few plants afford more pleasure at this season of the year. It is but recently that our gardens contained only the pink and white sorts of the *persicum*—the *coum* and *Europæum*; but now we have several exceeding brilliant varieties, some of them spotted, and also the pretty hybrids, *Atkinsi* and *Atkinsi roseum*. We commend them all to the attention of amateurs.

BEGONIA ROSEA CARMINATA.—This is a new and beautiful hybrid, somewhat resembling in general appearance *B. fuchsoides*, but the foliage and the flowers are larger, and the latter of a clear rosy carmine color. It is a winter flowering plant, and has been in bloom since the first of December. It will rank among the very best of the species noted for their fine flowering habit.

PIMELEA NIEPPERGIANA is one of the finest of this tribe of pretty flowering plants. A specimen lately exhibited by Messrs. Barnes & Washburn, at the Massachusetts Horticultural Society, about two feet high, was one mass of clusters of white flowers. Its habit is good, its foliage neat, and its growth vigorous. Though not new, it is still rare in collections.

NEW ABUTILONS.—The new varieties of this old greenhouse plant are very fine acquisitions. *Duc de Malakoff* has beautiful yellow flowers, veined with maroon. *Beranger* has yellow flowers, veined with brown, very large. They also flower freely, and make showy specimens at this season of the year.

566. *PANDANUS MAURITIANUS Hort. Kew.* ISLE OF FRANCE
PANDANUS. (Pandanaeæ.) Isle of France.

Syn. *Pandanus elegantissimus* of catalogues.

A stove plant; growing ten feet high; with elegant foliage; increased by suckers; grown in rich soil. (Illustration *Horticole*. 1850, pl. 265.)

All the *Pandanæ* are very symmetrical and beautiful plants, with very long, thick recurved leaves, some of which are green, others striped, and others (like the present specimen) green, edged with crimson. The species are of very ancient

origin, belonging to the antediluvian age, fossil remains of the fruit having been discovered which compare exactly with modern species.

This charming species inhabits the Isle of France, and has recently been introduced to Europe. It is of dwarf habit, and remarkable for the verdure of its linear leaves, gracefully recurved, the border and the spines which line them being of the deepest scarlet: It is a distinct and superb species, requiring the warmth of the hothouse to keep it in good health. (*Ill. Hort.*, Dec.)

567. *ÉPACRIS MULTIFLORA Hort.* MANY-FLOWERED EPACRIS.
(*Epacridaceæ.*) New South Wales.

A greenhouse plant; growing two feet high; with crimson and white flowers; appearing in spring; increased by cuttings; grown in peat and sand. Illustration *Horticole*, 1860, pl. 266.

This is one of the finest of this beautiful tribe of plants, with an erect habit, producing very dense spikes of large, deep crimson flowers, boldly tipped with white. It may be said to somewhat resemble, in its vigorous habit, the old *grandiflora*, but the flowers are far more thickly set on the shoots, less open at the mouth of the corolla, much deeper color, and more conspicuously tipped with white. It was raised by Messrs. Rollison, of Tooting, London, from seeds received from New South Wales, and is undoubtedly a distinct as well as beautiful species. It is the most vigorous, as well as the tallest growing of the species. It will prove an invaluable addition to our greenhouse plants. (*Ill. Hort.*, Dec.)

568. *AZALEA INDICA VAR. DUC D'AREMBERG.* DUKE OF
AREMBERG'S AZALEA. (*Ericaceæ.*) Garden Hybrid.

A greenhouse plant; growing three feet high; with white and scarlet variegated flowers; increased by cuttings; grown in leaf mould, peat and sand. Illustration *Horticole*, 1860, pl. 267.

A new and charming hybrid, raised by M. Jean Verschaffelt, of Gand, resembling considerably the Beauty of Europe, but distinct. Its growth is very vigorous; the foliage very green, obovate, and ciliate upon the borders. The flowers are very large, well formed, pure white, shaded with rose, and distinctly striped with scarlet. A stripe divides the upper central lobe of the flower into two parts, and towards the

base of which is a crimson spot, marked with numerous brown marks, which are compared, to use the words, to "circumflex accents," from their peculiar shape and position. "This charming variety, charming not merely in name but literally, on account of its fresh and delicate colors," will attract the attention of all amateurs. (*Ill. Hort.*, Dec.)

569. CEANOTHUS ELEGANS *Hort.* ELEGANT CEANOTHUS.
(Rhamnaceæ.) Australia.

A greenhouse plant; growing three feet high; with blue flowers; appearing in spring; increased by cuttings; grown in light rich soil. Illustration *Horticolæ*, 1860, pl. 268.

A pretty species of the *Ceanothus*, said to have been received from Australia, though perhaps uncertain, as all that have heretofore been introduced have been from America. It forms a small shrub, vigorous in habit, with small, oval, deeply serrate foliage, and numerous clusters or corymbs of soft azure blue flowers, disposed at the axils of the leaves, near the ends of the shoots. It is of easy culture, and its merits entitle it to a prominent place in the greenhouse. (*Ill. Hort.*, Dec.)

General Notices.

ON GROWING PLANTS IN ROOMS.—To persons not possessing a pit or greenhouse, the following remarks on the cultivation of plants in rooms will perhaps be found useful:—

Pots.—The necessity of having pots of various sizes is very obvious; the shape, however, should be uniform, in proportion as follows, being most suitable; five inches deep (inside measure), five inches diameter at the top, and three and a half inches diameter at the bottom. Pans should be provided to correspond.

Draining.—Good draining is essentially requisite. Each pot, according to the different sizes, should have about two inches deep of crocks or cinders, broken to the size of a common marble, laid at the bottom, placing a piece of pot over the hole, to allow superabundant water to pass off.

Soil.—Take the top spit with the turf upon it from a common, or old pasture field, not digging deeper than six inches; the soil should be entirely free from clay, and if the loam be sandy it is preferable. To this soil add one fourth of well-decayed horse dung. The longer this compost is laid together the better. Before using it for planting in, it must be well chopped

and broken, but not sifted at all through a sieve, as plants flourish far more freely in the soil when left open, there being a freer passage for water, heat and air to the roots. There are but few families of greenhouse plants that refuse to flourish in such a compost as the above, not including camellias and ericas, though no doubt they may be cultivated in rooms with tolerable success; the latter tribe will be found the most tenacious of injury in such a situation.

Potting.—To begin with a plant procured from the nursery. In the first place, examine if the roots are coming through the hole at the bottom of the pot; if so, this points out the necessity of repotting, which must be repeated until the plant has attained the size required for blooming. The size of the pot for repotting in, should be about two inches more in diameter than the one the plant is taken out of.

Watering.—Rain or river water is the best, and should always be of the same temperature as the room in which the plant is grown. The pot should always be placed in a pan or feeder; but water should not be allowed to stand in it. Particular attention should always be paid that no plant be allowed to flag its leaves. In some stages of growth and situation there will be found plants that will require water to be given them twice a day, and at other times not oftener than once a week. The best criterion to know when a plant requires water to be given it is when the soil on the top of the pot appears dry.

Insects, &c.—With some kind of plants the green fly is often found very troublesome. Sprinkle them over with diluted tobacco-water, or the plants infested may be put into a packing case, and fumigated with tobacco-paper; by either application the insects will be effectually destroyed. The tobacco-water or paper may be procured of the tobacconists at a very trifling cost; one shilling expended in either would serve for twelve months with a number of plants. It is necessary to keep the plants free from dust, and to pick off decayed leaves; also frequently to stir the mould on the surface with a blunted stick. They will require washing over the tops once a week, either by means of a syringe, watering-pot, or allowing them a gentle shower of rain. In frosty weather, watering over their tops should be performed in doors.

Air and Light.—When the air is not frosty a free circulation is at all times beneficial. In order to have healthful-looking plants, the branches should not be allowed to touch each other, and should always be kept as near the light as possible, frequently turning the plants to prevent the heads being deformed, as the natural inclination is to lean towards the light.

Pruning.—Taking off the point of the main shoot of a woody plant when young, causes it to grow bushy, and to be formed of a handsome shape. Also, when a plant is making shoots for flowering, taking off the points of the most luxuriant shoots tends to increase the quantity and size of the bloom.

Ripening the Buds.—The singularly-formed foliage or shape of some plants may obtain for them a place in collections; but in general most plants are admired for their blossoms. In order to have them in perfection

as well as profusion, it is highly essential that the embryo, or bud, be in a mature state. Bulbous plants, as the amaryllis, hyacinth, tulip, &c., when the flower is decayed, the foliage must be encouraged for a few weeks; after which it may be allowed to die away and remain at rest. The pots retaining the bulbs may be placed on a shelf, where they will dry, until the time of repotting, which in general will be in October. Those plants which produce their flowers upon the wood of the same season, as pelargoniums (geraniums), salvias, roses, chrysanthemums, &c., after flowering, require their shoots to be cut back to three or four buds, taking care to preserve the form of the plant, and giving but little water during the state of rest. When the plant begins to grow in the spring, having a larger pot given, and a regular supply of water afforded, and kept in moderate warmth, the blossoms will be produced. Herbaceous plants, as most species and varieties of calceolarias, &c., after flowering, require their tops to be cut off, and but little water during their rest; a large pot is given when the plants begin to grow.

Deciduous plants, as fuchsias, hydrangeas, &c., when the leaves begin to fall, will require little water and rest until spring, when a larger pot will be necessary, and the shoots to be pruned back a little. Evergreens, as azaleas and myrtles, when done flowering, require a larger pot, and their wood encouraging until it becomes ripe. Here the cactus tribe is included. At this potting some of the species will require their old wood thinned out.

Choice of Plants.—The taste of persons being so dissimilar, no list of plants would give entire satisfaction; therefore to attempt it here is unnecessary.—(*Floricultural Cabinet.*)

NEW KIND OF SILK WORM.—The London *Morning Chronicle* contains the following notice of a new silk worm which may be highly interesting to our countrymen, and perhaps revive afresh the interest which existed some years ago. As the *Ailanthus*, on which it feeds, can be so much more easily cultivated than the mulberry, the subject is worthy of attention, and especially of the Government, which might expend money to more advantage in introducing them than in importing tea seeds:—

“In March, 1859, M. Guerin-Meneville addressed a note to the Emperor on the introduction into France of a new kind of silk worm, living in the open air on a very hardy plant, the *ailante*, or Japan varnish tree, and producing two crops a year of a strong silky fibre, employed for centuries past in China to make clothes for the great mass of the population. The object of this note was to request the Emperor to provide the means of making an experiment on a large scale for the rearing of the silk worm. The authority was immediately granted, and the Imperial domain of Lamotte-Beauvron was selected as the place. The result is now published, and it surpasses all expectations. The new silk worms have likewise been reared in great numbers at Toulon, on the estate of M. Aiguillon, and at the chateau of Coudray, near Chinon, the property of Count de Lamotte-Baracé. More than three fourths of the worms produced excellent cocoons, though the condition of the atmosphere was very unfavorable, and it is now fully as-

certained that the new worm gives a profit of cent. per cent., and often much more, whereas the mulberry silk worm is reckoned very successful when it makes a return of fifteen per cent. on the capital employed. The silk of the *ailante* worm differs essentially from that of the mulberry worm. It is of an inferior quality, well adapted for coarse fabrics, and cannot enter into competition with that employed in the rich tissues of Lyons. The varnish tree will grow on the most barren soil. The cocoons may be prepared by the peasantry themselves, whereas the ordinary silk requires much skill and care in dressing it. The new silk will form an excellent substitute for cotton, of which France annually imports 69,504,000 kilogrammes for the United States. M. Guerin-Meneville proposes to call the new silk ailantine, or cynthiane, in order to distinguish it from the other kind in use. He is now studying the best means of promoting the production and manufacture of the new silk, which he positively declares will ere long supply the chief clothing of the people."

We believe the earliest information respecting this insect was derived from Mr. Rutherford Alcock, when acting as H. M. Consul at Shanghae. About the year 1848, that gentleman sent to the Horticultural Society numerous pupæ and samples of cocoons as well as of the raw and manufactured silk. Unfortunately the pupæ were all dead. Suggestions by the late Mr. Mitchell, for the better transmission of pupæ, were sent to Mr. Alcock, but we do not know whether further experiment was made. When the Great Exhibition of 1851 took place, the samples of silk and Mr. Alcock's papers were placed in the hands of the late Dr. Royle for exhibition among other oriental products; but the box containing them suddenly disappeared, and has never been recovered. It was thought to have been mislaid, and, if so, may possibly exist at the India House. The samples of woven silk had much the appearance of nankeen, rather coarse and very strong, and would not have been taken for silk by any ordinary observer.

It may be as well, perhaps, to add that the "ailante," on which the worm feeds, is the common *Ailanthus glandulosa*, one of the hardiest of trees, but very late in leafing in this country.—(*Gard. Chron.*)

HINTS FOR FLORISTS.—Drainage.—It is most essential that pots intended for the reception of flower roots or seeds should not only be thoroughly drained, that is, broken crocks should be placed in the bottom around the hole, to insure that water poured on the surface may pass freely through; but they should be so placed on the stand that the hole of the bottom does not come in contact with anything that could impede the exit of the water. In greenhouses, pots are usually placed on gratings or parallel battens of wood, with this intention; but on garden-stands it is often the case that the pot, being placed on one of the steps, it becomes necessary to put something under it to tilt it up. This not only renders it insecure, but unsightly. Therefore, in fixing a garden-stand of steps, let one end be a little lower than the other, in order that the water may run off. Then place two fir rods, a quarter of an inch square, parallel to each other, along the shelves, and on these set your pots; the rods should be painted of the same color as

the stand, generally green, and, not being nailed down, may be arranged at a proper distance from each other, to suit the size of the row of pots placed upon them. By adopting this course, you will insure one essential necessary to success in the growth of plants, namely, drainage; and when you observe that the water does not readily sink from the surface, you may be sure that something is wrong: in that case turn the ball and replace the crocks.

Composts.—In mixing up composts for general purposes, get together as many materials as possible, such as peat, rotted cow-dung, loam, leaf mould, in fact anything that experience proves is conducive to vegetation. Different plants require different food, and it is not every one who can ascertain the most proper and congenial; but when all these matters are mixed together, the roots will imbibe the particular food they delight in.

Sowing Seeds.—It is a great mistake to sow any kind of seed too thickly, such a course being extremely injurious to the rising family, whose growth is sadly impeded for want of nourishment. Scarcity of food at an early period is too plainly shown in after-life by a long unhealthy stem, producing yellowish-green leaves and stunted flowers. The effect of over-crowding is beautifully illustrated in the mignonette; observe the difference between plants from seeds sown in a pot or box, and those luxuriating in a border; the former are thin, lank, and emaciated; whilst a single plant will, in the latter case, cover more than a foot square. If your seed is of your own saving, or warranted good, sow very thin; if doubtful, sow thicker; but, in all cases, remove some of the plants as soon as they appear, in order that those left to flower may have plenty of room.

Tying.—In tying up branches of flowers, make a notch in the stick, or a slit on the top, in which insert your bast before you pass it round the limb. This will prevent its slipping down, as will always be the case with plants that have smooth stems. Bast should be soaked an hour or two before it is used, and sticks of different lengths always kept ready.

Cuttings.—In the preparation of cuttings great diversity of opinions exists among practical men. Some advocate the removal of the greater portion of the leaves, whilst others insist that not a leaf should be touched. Under certain circumstances both parties are right; because, if cuttings cannot be placed where all loss from evaporation is cut off, the more the evaporating vigor is decreased the better, since it is better that the leaves should be removed at once than that they should remain upon a cutting until they have exhausted it of its juices, which they would do in a very short time. But if a moist atmosphere can be kept round the cutting, then let all the leaves remain, except such as would make the cutting bud, or get crowded with foliage; because the leaves contain the matter out of which the future roots are formed, and are laboratories for the preparation of the matter to form branches and flowers. Cuttings cannot be too short, so that they possess the parts necessary to make a plant. Plants produced from cuttings struck in a shady border are hardier than those struck under glass; and this plan should always be adopted with heartsease and other hardy sorts.

Slugs.—These destructive insects are readily destroyed by lime-water; and the best means of attracting them is to lay on the ground at night, in different spots, some decayed vegetable leaves—pea or bean haulm if it is procurable—and then to water the spot, on withdrawing it in the morning, with your lime-water.

Lime-water.—Take a few lumps of unslaked lime, put it in a tub, and throw a little water over it, then cover it with a sack or cloth; in about ten minutes it will be slaked, then pour on some water, and after it has stood for three or four hours it will be fit for use. Skim off the film which will be left on the surface, and be careful not to disturb the grounds in taking off the water, which should be quite clear.

Trellising.—Plants intended for this purpose should, in the first instance, be trained to a thread or string if they are tender. They may be then arranged, string and all, into the intended form.

Red Spider.—A correspondent of the *Gardeners' Chronicle* asserts, that he has succeeded in destroying these destructive insects by means of a thin solution of potato starch, which he forces, with his garden engine, against the plants infected. This effectually destroys the insects, but not the egg, so that it is necessary to repeat when the attack is resumed. It renders the plants unsightly for a time, but not more so than when flour of sulphur is applied.—(*Floricultural Cabinet.*)

STRIKING CUTTINGS.—Fuchsias will strike under a common hand-glass in the common border all the summer through; but as we are getting later than will insure a continuance of fine weather, it is well perhaps to mention two or three ways. To those who have propagating-houses, with a supply of gentle bottom heat, hints are unnecessary; all the requirements being a soil composed of loam, sand, and decomposed dung in equal quantities, with which the pots should be filled, and the cuttings covered with a glass that fits well within the edge of the pot, and can be squeezed into the soil. But even here there is one way more certain than the rest: fill the pot within an inch of the top of the rim with the soil mentioned, knock the bottom on the table to settle it a little—it must be within an inch of the top when so settled; fill up half an inch to three quarters more with silver sand, and water all with a fine rose till the water goes through; now put the glass on gently to make a mark, and within this mark insert the prepared cuttings by pressing them through the sand till they touch the soil, but not go into it any depth, then cover the glass over, and put it up to the rim in the tan or medium containing the bottom heat. Wipe the glass thoroughly every morning, and keep off the sun; water occasionally, for they must not be allowed to get dry. You will see when they strike by their setting off to grow; they may then have a little air for an hour or two, increasing every day, till the glasses may be left off, and the pot taken out of the bottom heat; but they must be shaded. In a few days they may be removed to the greenhouse, and then potted off. The bottom must be cut up to a joint—that is, close under a leaf—and the leaves taken off an inch upwards, and there ought not to be above three joints or pairs of leaves

above ground. Next to bottom heat, which hastens striking a week, the same means adopted in a greenhouse, a cold frame, or a dwelling-house window, or even the open border, will do; but wiping the glass, shading, and the same soil as nearly as possible, are indispensable. In fact, one might take lessons from ladies in the country, who are their own gardeners, and never think of asking for a plant, but always beg for "a slip," which they no sooner possess than they consider they have the plant; they never think of losing one.—(*Flor. Cabinet.*)

THE MANETTI ROSE STOCK.—I observe in Mr. Radclyffe's remarks that with him this stock requires "five times the manure that a brier requires." There must be something very peculiar in his soil, for, with me, it seems to want no manure. I have Manetti roses that have been growing for these seven years past in a rather tenacious, chalky clay, without ever having had a particle of manure, and yet they are most vigorous, making annually shoots from six to eight feet in length. The vigor of this stock is so notorious here that it is generally planted in pieces of ground more or less exhausted. A word from Mr. Radclyffe as to the nature of his soil would be a boon to rose cultivators.—(*Gard. Chron.*)

Gossip of the Month.

DENNISON'S TREE AND PLANT LABELS.—We take especial pleasure in directing attention to Mr. Dennison's tree and plant labels, which have but recently been introduced to the notice of cultivators. Heretofore a neat label has been so difficult to procure, only at a high price, that all sorts of *sticks* have been stuck into pots, and suspended from trees, anything but ornamental to either. Mr. Dennison's ingenuity has overcome all obstacles in the way of the neatest label. He not only makes them of symmetrical shape, neatly cut and perfectly smooth, so as to be easily written upon, but furnishes them at a price which would not pay for the lumber. His zinc labels are especially noteworthy; the objection to the use of them has been the difficulty of obtaining them of a neat, uniform size, and the additional labor of making the hole for the wire. But Mr. Dennison's are all cut to one uniform pattern, with the eye for the wire, and all ready for writing the name with prepared ink, which is also furnished by him. We commend both the wood and zinc labels to all amateur cultivators of plants. No collection can be complete unless all the plants are neatly and correctly labelled.

IMANTOPHYLLUM MINIATUM.—This beautiful bulbous plant has recently flowered in the collection of Mrs. J. E. Thayer, Brookline. Mr. George Nelson, the intelligent gardener, kindly sent us some of the flowers. It

belongs to the Amaryllidaceæ, producing a tall stem, terminated with a large cluster of buff and orange tinted flowers, of a rather rare and peculiar hue, which remain in beauty a great length of time. It is still a rare plant, and scarce in English collections, and this is the first time, we think, it has bloomed in this country.

CATALOGUES, BOOKS, &C., RECEIVED.—Quite a number of catalogues, books, and pamphlets have been upon our table some time awaiting an acknowledgment. We name the following, though undoubtedly some are omitted.

Transactions of the New York State Agricultural Society for 1859. An invaluable volume, got up in the usual style of this useful series, under the charge of Col. Johnson, the efficient Secretary.

Transactions of the American Institute for 1859. Also a valuable contribution to agricultural science.

American Bee Journal, a monthly periodical, issued by A. M. Speigler & Co., Philadelphia. A valuable guide to bee culture, which is now attracting, and deservedly, more attention. Every beekeeper should take it.

An Address on the Condition and Office of the Agricultural College of the State of Michigan, by Prof. L. R. Fisk, A. M. An interesting statement of the progress of this pioneer institution in America.

The Horticultural Embellishment of Schoolhouse Grounds: an Essay prepared for the Seventh Annual Meeting of the Wisconsin State Teachers' Association, by Mrs. Hoyt. Capital advice on an important subject. We hope to give an extended notice of it at a favorable opportunity.

Address before the Essex Agricultural Society, by Rev. J. L. Russell. Full, as all Mr. Russell's addresses are, of suggestive ideas.

Record of the Progressive Gardeners' Society of Philadelphia, being the first annual report, for 1860, embracing twelve essays on important horticultural topics, with discussions on the same.

Descriptive Catalogue of the Lyons Nursery, E. Ware Sylvester, proprietor, Lyons, N. Y.

T. C. Maxwell & Brothers' Wholesale Catalogue for 1861. Geneva, Ontario County, N. Y.

Catalogue of Selected Roses, and other Hardy Plants, including both old and new varieties, cultivated and for sale by James Pentland, at Greenmount Garden, on York Road and Olive Street, Baltimore, Md., for 1861.

REMEDY FOR THE RED SPIDER.—Dr. Bush, of Detroit, has communicated the following recipe for destroying this destructive insect: Twelve ounces common soft soap, three ounces (by measure) turpentine or camphene; mix well together. This is for six gallons water, which must be stirred well together, and applied with a common garden syringe, or the same proportion for any quantity.—(*Michigan Farmer.*)

Pure whale oil soap, in the proportion of one pound to seven gallons of water, will effectually kill every red spider. But we give the above that a trial may be made.—Ed.

MCCORMICK'S REAPER.—Efforts are being made to extend the patent for this valuable invention. As the owner of it has made an ample fortune, we trust the farmers may now have a chance to reap some benefits from it in their turn. We trust, therefore, that no efforts will be spared to defeat the intentions of the inventor, who will no doubt leave nothing undone to lobby the measure through.

Massachusetts Horticultural Society.

Saturday, February 4.—An adjourned meeting of the Society was held to-day—the President in the chair.

The Treasurer, W. R. Austin, reported that the Committee appointed for that purpose had settled with Mount Auburn Cemetery. The sale of lots in 1860 was \$5,000. After deducting the usual sum of \$1,400, and payments authorized by the Society for improvements in the cemetery, there was a balance of \$3,000, which had been paid into the hands of the Treasurer.

Hon. J. S. Cabot, from the Committee of Arrangements for 1861, reported that they had fixed upon the 17th, 18th, 19th, and 20th days of September next as the time for holding the Annual Exhibition.

It was voted, that the Appleton medal should be struck in silver, and that members, after having taken one medal, should have their choice of receiving other medals which might be awarded them, or their equivalent value in money.

W. A. Harris, from the Committee on that subject, submitted a report in favor of procuring life-size portraits of the past Presidents of the Society since its organization, at an expense not exceeding \$1,000, and recommending that portraits of subsequent Presidents be also secured in future. The report was accepted, and the Committee authorized to proceed with the work, although the money cannot be appropriated till the April meeting.

On motion of C. M. Hovey, a Committee, consisting of the President as chairman, C. M. Hovey, J. S. Cabot, E. S. Rand, and E. Wight, to which was added M. P. Wilder, was chosen to prepare a history of the Society from its organization, for publication in a convenient form for distribution to the members—the expense not to exceed \$1,000.

Mr. John Owen addressed the meeting upon the death of James Munroe, of Cambridge, a late member of the Society, and paid a feeling tribute to his memory. He offered resolutions expressing the sense of the Society, which were unanimously adopted. Mr. Owen was followed by C. M. Hovey in some appropriate remarks in reference to Mr. Munroe's valuable services as a contributor and member.

The meeting then adjourned for four weeks, to March 2d.

Horticultural Operations

FOR MARCH.

FRUIT DEPARTMENT.

FEBRUARY has been, on the average, a very mild month. The eighth, however, was severely cold, perhaps as cold a day as has been experienced for many years, in some localities the mercury falling to a lower point than in the memorable winters of 1857 and 1835. Our own thermometer marked only 17° below, while in 1857 it was 18° below. The change from warm to cold was fearfully sudden, being no less than 58° from 3 o'clock, P. M., on the 7th, to 6 o'clock, A. M., on the 8th. Peach buds are much destroyed, and in some places the pear trees are injured. The warm weather of the last two weeks has been more like the last of March than February, and there is every appearance of an early spring.

March is a busy month; what with pruning, grafting, making hotbeds, and propagating, there is an abundance of work. Fruit trees may be pruned immediately, and grafting commenced at once. In a more southerly climate, preparations may be made for planting by the end of the month.

GRAPE VINES in the earliest houses will now have all their fruit cut, and attention should be directed to the maturity of the wood; air abundantly in good weather. Vines in graperies will now be breaking, and by the middle of the month will show their flower buds. Syringe freely till the flower buds are well advanced, and tie up the shoots and spurs as they lengthen; disbud all shoots not wanted for another year's wood; slightly increase the temperature as the flowers open, and give less air. Vines in cold houses should be uncovered the last of the month, unless cold weather should set in; air freely now, in order to maintain a cool temperature. Grafting may be done now, in either of the various modes which have been detailed in our pages in previous volumes.

SCIONS of all kinds of fruit trees should be cut immediately, especially cherries and plums. Preserve in the cellar in sand or loam.

PRUNING may be pushed forward in all favorable weather.

GRAFTING cherries and other fruits may be commenced.

CURRENTS and **GOOSEBERRIES** should be pruned, and cuttings prepared.

HARDY GRAPE VINES may be pruned now.

FRUIT TREES in pots may be brought into the house for a succession.

ORCHARD HOUSES should yet be kept cool, in order to prevent the growth of the buds till all danger of severe weather is over.

FRUIT TREES infested with the brown or white scale should be washed with potash water, made by adding five gallons of water to two pounds of potash. If badly infested, the main limbs should be scraped first and washed with soap.

INSECTS should not be forgotten. The canker worm grub will begin to move towards the last of the month. Tar or protect the trunks to prevent the ascent of the grubs.

FLOWER DEPARTMENT.

With the advent of more favorable weather there is plenty to occupy attention. In the house the increased heat and solar light will give a rapid start to all kinds of plants; and as this is the season when the houses should put on their best appearance, an early opportunity should be taken to rearrange and put them in fine condition. All the repotting that is needed should, if possible, be done this month. Propagating should also be forwarded, for in April other work will demand all the spare time. Sow seeds of all kinds of plants needed to decorate the garden, and prepare frames for protecting and hardening off bedding plants of all kinds.

PELARGONIUMS will now make rapid growth, and, unless properly aired and watered, will have a tendency to make too much wood. Tie out the shoots carefully, thinning out all that are too weak to bloom well. Stop late flowering specimens, but not those intended for blooming in May. Water more liberally, according to the condition of the plants, and, when the weather will admit, give air from morning till night.

AZALEAS will soon show their blossom buds; keep them in a cool situation, shaded from the noon sun; syringe freely, and water more liberally as the plants require it. Tie all plants into handsome shape. Young stock should be repotted, and have a more genial temperature, using the syringe freely; repot if they require it.

CAMELLIAS should be more freely watered as they commence their growth, and have liberal syringing daily. Head in straggling plants, and repot all such as are in a bad condition, first shaking the old soil off clean from the roots, and repotting in smaller pots, in light soil, well drained. Inarching should be done now.

CINERARIAS are among the finest of spring flowering plants, and quite too much neglected. When well grown their masses of blossoms are a great addition to the greenhouse. See that full grown specimens do not suffer for water, otherwise the foliage will suffer. Tie out the shoots as they advance, so as to form broad, round heads. Keep near the glass. Water occasionally with weak liquid manure, and fumigate often for the green fly.

CALCEOLARIAS should have similar treatment to cinerarias.

TRITOMAS may now be divided and potted, so as to insure strong plants for turning out into the open ground in May.

HEATHS done blooming should be headed in and have the protection of a frame, or be kept in the coolest part of the house. Put in cuttings now.

EPACRIS may have the same treatment.

BEGONIAS should be shaken out of the old soil and repotted in fresh compost of leaves, peat, loam, and sand.

CALADIUMS for blooming in pots should be repotted in light soil, and started into growth.

LILIUMS now well advanced should be repotted, placing them deep enough to cover the fresh top roots.

Sow **SEEDS** of all kinds of plants for bedding out, such as Cannas, beau-

tiful for their foliage, Colæas and Maurandyas, Stocks, Balsams, Asters, Double Zinnias, Lobelias, Dianthus Heddeewigi, Tropæolums, &c., &c.

ROSES in small pots may have a shift in order to get them strong and stocky before planting out in May.

BEDDING PLANTS, struck in autumn or last month, should be potted off, and, as soon as the weather will render it safe, removed to cold frames where they can be protected from frost.

DAISIES wintered in frames, now divided and potted, will make fine plants for garden decoration in May.

PLANTS of all kinds which have been at rest during the winter, should now be repotted, and started into growth.

CHRYSANTHEMUMS may be propagated from cuttings.

FUCHSIAS should be repotted and encouraged in their growth.

FLOWER GARDEN AND SHRUBBERY.

Nothing affords more comfort around a suburban residence than dry and smooth walks in the early season of the year, and to accomplish this the first opportunity should be taken after the frost is gone to rake and roll them often. The lawn should also have a simple raking and rolling while the earth is soft, to give it an even surface; top dress with guano.

SHRUBS, ROSES, &c., should be pruned early, as it greatly strengthens their flowering.

HERBACEOUS PLANTS should be uncovered towards the last of the month.

BULBS of all kinds should be uncovered in good season, protecting them again with light covering should the weather prove cold.

GROUND should be prepared for planting, and all trenching done in season.

FRAMES containing half hardy plants should be well aired in fine weather.

CARNATIONS, DAISIES, &c., wintered in frames, should be uncovered in good weather. Clean off dead leaves, and stir the soil around them.

VEGETABLE GARDEN.

HOT BEDS are so essential in all gardens of any extent that we must suppose them in readiness for use. If not, they should be made at once. A few loads of fresh horse manure, turned over once or twice, will supply the material, which should be made into a bed, as we have often directed, two or three feet high. Put on the frame and sashes, and cover with six inches of soil. As soon as warm, which will be in a few days, it will be ready for use.

SOW SEEDS of Egg plant, Tomato, Cauliflower, Celery, Cabbage, Cucumber, and all other kinds that are needed, planting some in boxes or pots, and others, such as Lettuce, Radishes, &c., in the ground. Later in the season the cucumbers can be planted in hills, and other things started for early crops. The good judgment of any gardener or amateur will direct him how to make the most of a good hotbed.

THE BEST APPLES AND PEARS.

THE reports included in the proceedings of the American Pomological Society contain much interesting matter, especially those from various State and local committees, giving the results of pomological inquiries relative to the best, or, at least, the most popular fruits in their respective States and localities. That certain fruits often obtain a local reputation to which they are not entitled is certainly true, for it frequently happens that newer varieties, either from prejudice or ignorance of their excellence, do not receive a fair trial, or are judged prematurely. Twenty or thirty years' successful culture of any particular fruit brings out its true value, and though others newly introduced may be quite as good or better, the real evidence—the test of time—is wanted to place them beyond doubt. Hence we find in one State a certain pear or apple is the most esteemed; while in another, with a climate precisely similar, other varieties have a reputation quite as popular. To want of proper information or long experience then we must attribute this difference of opinion; and it is only when we find particular varieties appreciated in all places that we must “make a note on't,” and acknowledge that they are the popular and best fruits.

To this end the Pomological Society, subsequent to the meeting in 1858, addressed a circular to the several State and local committees to gather all the facts in relation to this matter, to be submitted at the meeting last September, and to answer the following questions as far as possible:—

First. What six, twelve and twenty varieties of the apple are best adapted to an orchard of one hundred trees for family use, and how many of each sort should it contain? What varieties, and how many of each, are best for an orchard of one thousand trees to bear fruit for the market?

Second. What six and twelve varieties of the pear are best for family use, on the pear stock? What varieties on the quince stock? What varieties, and how many of each of

them, are best adapted to a pear orchard of one hundred or one thousand trees?

The answers to all these questions are given by some of the committees, and by others omitted, so that we have not the information so complete as could be desired. Still, the returns are from several States and quite full. Had every committee answered, we could then have given a tabular view of the result, which would at least be interesting to cultivators, though as some States have yet done so little in pear culture and sufficient time has not elapsed to gain the proper experience, the answers in regard to this fruit would be of doubtful importance. Such as they are, however, we present to our readers.

To give the answers to all the questions would require more room than we have to spare, and we must confine ourselves to the answers to the simple questions of what are the best six and twelve varieties of apples and pears for "family use," believing this will satisfy the inquiries of most cultivators. Orchardists who would like to know the views of the committee in regard to the varieties suitable for an orchard of one thousand trees, must consult the Society's published volume. We proceed with the reports, taking them in the order in which they appear:—

APPLES.

CONNECTICUT.—Best six. Bough, Williams, Gravenstein, Porter, Hubbardston Nonsuch, and Baldwin.

Best twelve. Early Harvest, Bough, Red Astrachan, Williams, Primate, Fall Pippin, Porter, Hubbardston Nonsuch, Gravenstein, Baldwin, R. I. Greening, and Roxbury Russet.

RHODE ISLAND.—Best six. Early Harvest, Williams, Porter, Baldwin, R. I. Greening, and Roxbury Russet.

Best twelve. Early Harvest, Bough, Williams, Porter, Gravenstein, Beauty of Kent, R. I. Greening, Peck's Pleasant, Baldwin, Hubbardston Nonsuch, Shepard Sweet, Roxbury Russet.

MISSISSIPPI.—Best six. Carolina Red June, Horse, Summer Red, Camenser, Shockley, and Poole.

Best twelve. Carolina Red June, John Hunt, Horse, Summer Red, Covington, Sweet Russet, Colley, Cooner, Shockley, Poole, May, Camenser.

KENTUCKY.—Best six. Early Harvest, Maiden's Blush, Rambo, Small Romanite (Carthouse), Winesap, and Rawle's Janet.

Best twelve. Early Harvest, Maiden's Blush, Carolina Red June, American Summer Pearmain, Rambo, Pennsylvania Red Streak, Bellflower, Milam, Winesap, New York Pippin, Small Romanite, Rawle's Janet.

CENTRAL AND EASTERN OHIO.—Best six. Benoni, Maiden's Blush, Belmont, Rambo, Smith's Cider, White Pippin.

Best twelve. Early Harvest, Benoni, Maiden's Blush, Ohio Nonpareil, Rambo, Tolman's Sweet, Fallawater, Rome Beauty, Smith's Cider, Newtown Spitzenberg, Baldwin, and White Pippin. •

NORTHERN OHIO.—Best six. Early Harvest, Garden Royal, Belmont, R. I. Greening, Baldwin, and Rambo.

Best twelve. Garden Royal, Belmont, Baldwin, Nonsuch (Red Canada), Myers' Nonpareil, Jersey Sweet, Early Harvest, R. I. Greening, Rambo, Red Astrachan, Bough, Winesap.

SOUTHERN OHIO.—Best six. Early Harvest, Benoni, Fall Pippin, Bellflower, Jonathan, Cannon Pearmain.

Best twelve. Early Harvest, Red Astrachan, Benoni, Fall Wine, Ashmore, Maiden's Blush, Rambo, Bellflower, Broadwell, Jonathan, Rawle's Janet, Cannon Pearmain.

MICHIGAN.—Best six. E. Harvest, Red Astrachan, Lowell, Fall Pippin, R. I. Greening, Nonsuch.

Best twelve. E. Harvest, Red Astrachan, Bough, Lowell, Gravenstein, Keswick Codlin, Fall Pippin, Bellflower, R. I. Greening, Rox. Russet, Nonsuch, Ladies' Sweeting.

Northern New York, Pennsylvania, and Massachusetts did not reply to the questions; but cultivators in these States can compare these lists with such as they think desirable. As we have before remarked, they only indicate, not decide which are the best fruits, for some of the varieties named are comparatively new, and cannot have been tested long enough to know their real merits. New York produces more apples than any other State, and a reply to the answers of the Society would have shown the preferences of her extensive cultivators. Notwithstanding all that has been said, the Baldwin, R. I. Greening and Roxbury Russet are the most popular

native varieties, and the Bough, Early Harvest and Red Astrachan rank next. The West has some native sorts which are much cultivated, some only for their keeping qualities, aside from excellence. Beyond their respective localities, they are very little known, and their comparative value undecided. The list of universally popular sorts is, however, sufficiently large.

PEARS.

Evidently, the experience in pear culture is extremely limited, and the reports are quite meagre. In some northern States the trees are injured by the cold weather, while in the middle and western States they suffer from the blight in summer. Massachusetts, which is free from all such injury, sends no return, and we are left in conjecture as to the opinion of the committee. We regret that the answer, which we know was considered, was not matured and given. But we proceed with such as are before us.

CONNECTICUT.—Best six. Rostiezer, Bartlett, Belle Lucrative, Buffum, Lawrence, and Beurré Langelier.

Best twelve. Doyenné d'Ete, Rostiezer, Bartlett, Flemish Beauty, Belle Lucrative, Louise Bonne of Jersey, Buffum, Beurré d'Anjou, Seckel, Lawrence, Beurré Langelier.

Best six on quince. Beurré d'Amalis, Belle Lucrative, Louise Bonne of Jersey, Urbaniste, Duchess, and Glout Morceau.

RHODE ISLAND.—Best six. Dearborn's Seedling, Beurré Giffard, Bartlett, Pratt, Belle Lucrative, Lawrence.

Best twelve. Bloodgood, Beurré Giffard, Dearborn's Seedling, Doyenné Boussock, Bartlett, Belle Lucrative, Pratt, Flemish Beauty, Seckel, Buffum, Lawrence, Easter Burré.

Best six on quince. Beurré Giffard, Louise Bonne of Jersey, Duchess, Beurré Diel, Urbaniste, Glout Morceau.

MISSISSIPPI.—Best six. Madeleine, Belle Lucrative, Dearborn's Seedling, Beurré Diel, Bartlett, Winter Nelis.

Best twelve. Madeleine, B. Lucrative, Bloodgood, Seckel, Dearborn's Seedling, White Doyenné, Rostiezer, Beurré Diel, Tyson, Winter Nelis, Bartlett, Doyenné d'Alencon.

Best six on quince. B. Giffard, Duchess, Tyson, Beurré Diel, Rostiezer, Easter Beurré.

KENTUCKY.—Pears have not been extensively cultivated as an orchard fruit, and the blight has greatly discouraged all attempts to cultivate them on a large scale. No return is made.

CENTRAL AND EASTERN OHIO.—Best six. Madeleine, Bartlett, Flemish Beauty, White Doyenné, Seckel, Lawrence.

Best twelve. Madeleine, Bartlett, F. Beauty, W. Doyenné, Seckel, Lawrence, Bloodgood, Belle Lucrative, Buffum, Louise Bonne of Jersey, Kirtland, and Doyenné d'Alencon.

Best six on quince. Doyenné d'Ete, Belle Lucrative, White Doyenné, Louise Bonne of Jersey, Duchess, and Doyenné d'Alencon.

NORTHERN OHIO.—Best six. Zoar Beauty, Bartlett, Kirtland, Beurré Bosc, F. Beauty, Winter Nelis.

Best twelve. Zoar Beauty, Bartlett, Kirtland, Beurré Bosc, F. Beauty, Winter Nelis, Beurré d'Anjou, Washington, Stevens's Genesee, Ananas d'Ete, Seckel, and Nouveau Poiteau.

Best six on quince. Beurré Giffard, White Doyenné, Louise Bonne of Jersey, Beurré d'Anjou, Stevens's Genesee, and Nouveau Poiteau.

SOUTHERN OHIO.—Best six. Rousselet Hatif, Bloodgood, Bartlett, Seckel, Glout Morceau, Passe Colmar.

Best twelve. Rousselet Hatif, Bloodgood, Bartlett, Seckel, Glout Morceau, Passe Colmar, Early Butler (of Cincinnati), Golden Beurré, F. Beauty, Swan's Orange, Beurré Diel, Dix.

Best six on quince. Doyenné d'Ete, Bloodgood, Tyson, Seckel, Louise Bonne of Jersey, and Le Curé.

MICHIGAN.—Best six. Bloodgood, Bartlett, B. Lucrative, Swan's Orange, White Doyenné, Winter Nelis.

Best twelve. Madeleine, Bloodgood, Rostiezer, Sterling, Bartlett, Belle Lucrative, F. Beauty, Swan's Orange, White Doyenné, Oswego Beurré, Lawrence, Winter Nelis.

So far as present experience goes these are the best. But certainly such kinds as Doyenné d'Alencon, Kirtland, Sterling, and Nouveau Poiteau are too new to afford any very satisfactory result, and the Rousselet Hatif ought not, at this late day, to be found in any list of six!

As we have remarked, and nearly all the reports confirm it, the pear has been yet too little cultivated to ascertain the

comparative value of different varieties. Mr. T. T. Lyon, of Michigan, states that "the knowledge drawn from his experience is hardly of a satisfactory character." In Vermont, "the attempts which have been made in the cultivation of the pear have not, for the most part, been very successful." While in Maine, "but a limited number of pears succeed well." So that as yet the pear is in the infancy of its cultivation, and some years must elapse before reliable reports can be expected from many States.

So far, however, as we may judge from what we have given, there are a few varieties which appear unusually popular; these are the Bartlett, Seckel, and Belle Lucrative: those nearly so, the Lawrence, Flemish Beauty, Winter Nelis, and Louise Bonne of Jersey. On the quince, the Duchess, Louise Bonne of Jersey, and Beurré Diel have proved everywhere satisfactory. Thus much, therefore, we have gained: That about a dozen kinds have been proved good in a range of territory extending from Massachusetts to Mississippi, and may therefore be safely planted by all who are about cultivating the pear; hence we may conclude that when our recently introduced varieties have been generally disseminated, and grown as long as the Bloodgood and Dearborn's Seedling,—which are fine pears and have great popularity,—they will at least be found quite as valuable as any that are enumerated in the above selected lists.

The result is obvious. The pear is yet a neglected fruit. For orchard culture it has received but little attention. What we do know is mostly gathered from the observation and experience of enthusiastic cultivators of limited collections. That it can never rank with the apple in commercial value, is true. Its delicacy of texture will not admit of the same rough handling, which makes the former so well adapted to transportation without injury. Even the winter varieties, while yet seemingly hard, suffer so much in this way that immediate markets can only amply reward the cultivator. Yet for this object a fruit so truly delicious should receive every attention, and will merit and repay all the labor that, by means of superior culture, careful gathering, skilful ripening and proper transportation, can be bestowed upon it.

DELAWARE AND CONCORD GRAPES.

BY C. DOWNING, NEWBURGH, N. Y.

IN the February number of your Magazine you copy an article from the Farmer and Gardener, in which the writer says, "the advocates of the Delaware are either directly or indirectly pecuniarily interested in it, and that it is inferior to Concord in flavor—of slow growth—high price, and will not produce one quarter as much as the Concord." Now allow me to say, I have had some experience and observation with these two grapes, having obtained them both when first brought before the public, and so far have given them a fair trial.

I have no particular interest in the Delaware except the public good, (not having sold any vines or fruit, and do not expect to.) It is not so rampant in its growth as Concord, but is vigorous enough for all practical purposes—ripens its wood better than any hardy grape I ever saw—comes early into bearing—is very productive (too much so unless thinned), and to my taste, and all others who have expressed an opinion to me, much superior to Concord in flavor; and I think the writer and his friends must have a singular and primitive taste to prefer Concord to Delaware or Diana. He complains of the high price, but forgets that the Concord was first sold at \$5 each, and also that the Delaware will soon be reduced so that the million can plant it.

Now I will state a fact. Five years ago I planted in a continuous row one of each, in the order named—Rebecca, Raabe, Delaware, Hartford Prolific, Concord, and Elsinboro', and, so far, the Delaware has given me more fruit than any one of them—soil and cultivation all the same—exposure free and open. The ground, when planted, was worked to the depth of fourteen or fifteen inches, and moderately enriched. Other soils, locations, and exposures may give different results, as this is only a single instance, and I have had experience enough to know that no *decided* opinion can be given, as to productiveness and profit per acre, short of ten years' trial at least, and twenty would be safer. I do not

undervalue the Concord, but, on the contrary, esteem it a valuable acquisition, as I stated to my friends when I first saw and examined it at Mr. Bull's, the originator; but it is, in my opinion, inferior in flavor to the Delaware, besides being two or three weeks earlier, which is a desideratum. Both are useful varieties, and will fill the places they are suited for.

POMOLOGICAL GOSSIP.

REPORT OF THE COMMITTEE ON NATIVE FRUITS, made to the American Pomological Society, at the meeting in Sept. 1860. The length of our report of the last meeting of this Society precluded us from giving the report of the Committee on Native Fruits exhibited, and examined by them. We now supply the omission:—

APPLES.

AUTUMN SEEK-NO-FURTHER, from W. H. Loomis. A fine fruit, above medium size; greenish white, splashed with carmine; very good.

GREEN SWEET, from the same. Looks well; good size. Reported to be superior for baking.

SEAGER, from C. R. Davis, Philipsburg, N. J. Large size; red striped; good.

HARWOOD SEEDLING, from the Richmond Horticultural Society of Indiana. Above medium size, and succeeds the Ortley in season, and resembles it. Jan. and Feb.

FENLEY, Hort. Soc. of Louisville, Ky. Size large; oblate irregular, yellowish white; flesh yellow; quality good. Cooks from July to September. In good eating order during Sept.

HAGUE PIPPIN, from Richmond Hort. Soc. of Ind. Large; handsome; form conical; deeply striped with red. Jan. and Feb.

BUCKINGHAM, from Col. Bainbridge, of South Pass, Ill. Very large; oblate, conical; deeply shaded with crimson, large grayish dots. Believed to be the Meigs, Jackson Red, and Buncomb of the South, and also called Winter Queen in Virginia and Kentucky.

INDIANA FAVORITE, (Richmond Hort. Soc.) Medium size; handsome. Said to be a fine table apple in Jan.

BRADLEY'S No. 1, from S. T. Lyon, Plymouth, Mich. Medium size; good. Sept.

CATHEAD, of Virginia. Red striped, above medium size; good.

LEWIS, from M. Lewis, Greenburg, Ia. Medium size; oblong; yellow, splashed with carmine; flesh yellow and rich.

STANSILL, from W. L. Steele, N. C. Above medium size; oblate; greenish yellow, striped with red and flecked; flesh yellow; subacid. Promising.

BONUM. Under medium size; bright red; very good.

MAGNUM. Same as Carter of Alabama.

BRANDYWINE. Very handsome; above medium; a native fruit.

NYACK PIPPIN. Large; tender; fair quality. Supposed to be Summer Pippin.

CARTER (Va.), by H. Roby. Size medium; yellowish; tender, juicy and pleasant.

ROBERTSON'S WHITE, from the same. Medium to large; yellowish white; crisp; juicy, subacid; rather rich.

TIBBETTS'S SEEDLING. T. T. Lyon, Mich. Large; whitish; conical; regular; subacid. Pleasant.

GRAPES.

CREVELING, Bloomington or Catawissa, from Kingston, Pa. Ripe in early September. A good early blue grape, with a peculiar red on the stem when separated from the fruit.

CHICKASAW, from Quincy, Ill. Found wild on the bluffs of the Mississippi; color blue black; large size, and medium bunch. Ripe end of August.

MAXATAWNEY. Appears well; white inclining to amber; round oval. Not ripe.

SEEDLING, from Ontario County, N. Y. Color black, and similar to the Clinton.

SEEDLING, from Pittsburgh, Pa. Evidently of foreign parentage. Grizzly color; round fruit; fine flavor; small bunch; similar to Rose Chasselas.

GREGORY. A black grape. Not ripe.

SEEDLING, black, from Richmond, Ia. Bunch and berry large; quality good.

SEEDLING, from Philadelphia. Purplish red; bunch medium size and compact; berry medium, slightly oval, with little pulp; flavor vinous and good.

PEARS.

CLAPP'S FAVORITE, from Dorchester, Mass. Very large; similar to Bartlett in form, but less musky in flavor; vinous, melting, buttery and juicy; fine texture. Ranks best.

BARTRAM, from Philadelphia. Medium size; pale yellow; obovate; juicy, melting, fine texture. Quality best. Ripe in September. Supposed to be a different pear from that sent out by Col. Carr, some years ago, under that name, and the committee recommend that it be called the Bartram pear.

DORCHESTER BEAUTY, from Dorchester, Mass. Fruit handsome, but rather poor.

SEEDLINGS, four, from Michigan, were tried, but none of them were of much merit.

SEEDLING SECKEL, good.

PEACHES.

DUBOSCO, similar to Oldmixon. Very large; flesh greenish white; very good.

GRAND ADMIRABLE, from Louisville, Ky. Very large; skin yellowish white, tinged with pink; flesh white. A cling; red at stone; very good.

YELLOW SEEDLING. Large and promising. Free.

PLUMS.

KOHLER KAMP, from P. Raabe, Philadelphia. Beautiful red; oval shape; free; dry, but not quite ripe. Reported to have resisted the attacks of the curculio.

BOWEN GAGE. Oblong; rich yellow; not ripe enough for judgment.

PRINCE OF WALES RASPBERRY.—In another page we have copied an account of the estimation in which this new raspberry is held in Great Britain. It fruited with us the last season, and we can say that its qualities are quite equal to what has been stated. It is undoubtedly the largest and best raspberry that has been raised,—a most vigorous grower, a good bearer, of the largest size, and superior to Knevit's Giant, which has so long been the favorite. It is destined to hold a prominent place among raspberries.

ROOT-GRAFTED APPLE TREES.—The advocates of root-grafted apple trees have objected to our remarks upon their value. It is, therefore, with much gratification that we find one so well informed, who does not hastily express an opinion, as Mr. William Reid, of New Jersey, denouncing these trees in even more severe terms than we have ever ourselves expressed. We copy his remarks, which appeared in the March number of the Horticulturist:—

“I would, while speaking of the quality of trees grown in different sections of the country, the defects of which our friends in the West have been so delighted in pointing out, call the attention of parties who are planting apple orchards, which are likely to be of far greater importance to the country at large than the peach tree, what people are perfectly able to judge of by appearance, to some defects not so easily detected in the apple. I allude to the millions of apple trees that the country is now being flooded with, and distributed in every corner of the land by persons calling themselves tree agents or pedlers, who come from all parts of Western New York. I allude to those trees that are known by the name of root-grafted trees. They are, to be sure, what they term them, root grafted; but the root, if root it may be called, is a mighty small root, or piece of a root, being only a piece about two inches in length. A proper name would be to call them cuttings—for they are nothing more nor less than apple trees grown from cuttings, the small piece of root only keeping the graft alive until the cutting begins to grow, which makes new roots of itself. The consequence will be, after a few years, or when they begin to bear, that a great proportion of them will blow down with the wind. Being only cuttings, they are deficient in the strong roots which apple trees have that are budded or grafted on the seedling stock above ground, and which are so necessary to make strong, lasting, and permanent trees. And I would advise any person who is about planting out permanent orchards, to have nothing to do with any apple tree that is not grafted from six inches to a foot above the ground. They are not only likely to be much hardier, but have roots to sustain them when they come into bearing and are of a large size. This is one reason why so many trees,

now to be seen in the West, that have been planted with these root cuttings, are dying out in winter. Not only have they this objection, but they are nearly all more or less lurchd over from the effect of the winds; and whoever plants them will be disappointed, sooner or later. Most of the tree pedlers that travel through the country on account of cheapness, and from the short, bushy roots being more portable than apple trees that are grafted above the ground, carry this kind of tree with them. It is not necessary now, if it ever was, to buy trees of travelling agents, who have no fixed place of residence or respectability, and who generally are ignorant men, scarcely knowing the name of one tree from another, except what the circulars and other credentials they carry give them, which they generally have in abundance. I would again advise every person to go to a respectable nurseryman—and there are plenty of such—who will send them trees correct to name, who have their character and reputation at stake, and who are generally more competent to guess as to what varieties are best adapted to the locality the purchaser lives in. Not only this, but they can generally purchase all kinds of trees cheaper and better than from such agents. * * * I am satisfied that more loss and disappointment have been caused to purchasers by pedlers sending small, worthless trees through the country, than would have sufficed to plant the whole Western States. In place of this, they have now to begin and replant all the ground planted from 1850 to 1855. I refer now to small, worthless pear trees, as well as apple trees, many of them only a year old, and not more than two or three feet high, which was the usual size sent out at that time. The consequence is they have all, or nearly all, been frozen out by the severe winters, and scarcely a vestige of them is now to be seen. But people have learned caution if it has cost them dear.”

THE BEST APPLES AND PEARS FOR CENTRAL MASSACHUSETTS.
—A correspondent, whose good judgment can be relied upon, has been discussing the subject of the best apples and pears for Central Massachusetts, where, as he informs us, “the season is at least a week shorter” than in Boston. We have

not space for all his remarks, but copy the list of varieties which he advocates as reliable. It is as follows:—

From the best information we can obtain, we recommend the following, among others, as APPLES worthy of cultivation in Worcester County. They are numbered about in the order that they come into eating:—

- | | |
|-------------------|---------------------------|
| 1. Red Astrachan. | 7. Leland's Spice. |
| 2. Bough. | 8. Hubbardston Nonsuch. |
| 3. Williams. | 9. Rhode Island Greening. |
| 4. Porter. | 10. Ladies' Sweeting. |
| 5. Gravenstein. | 11. Baldwin. |
| 6. Fameuse. | 12. Roxbury Russet. |

With the PEAR, as with the apple and other fruits, the first step before taking any step at all—to use an Irishism—is to decide what varieties to cultivate. The following list contains thirty of what we consider among the most popular pears cultivated in Central Massachusetts, numbered about in the order in which they come into eating:—

- | | |
|----------------------------------|-----------------------------|
| 1. Doyenné d'Ete, p. q. | 16. Beurré Superfin, p. q. |
| 2. Beurré Giffard, p. q. | 17. Paradise d'Automne, p. |
| 3. Rostiezer, p. q. | 18. Fulton, p. |
| 4. Tyson, p. o. | 19. Doyenné Boussock, q. q. |
| 5. Bartlett, p. q. | 20. Beurré d'Anjou, q. p. |
| 6. St. Ghislain, p. | 21. Urbaniste, q. p. o. |
| 7. Flemish Beauty, p. q. | 22. Beurré Diel, q. |
| 8. Belle Lucrative, q. p. o. | 23. Duchesse, q. |
| 9. Buffum, p. q. o. | 24. Dix, p. |
| 10. Swan's Orange, p. | 25. Sieulle, q. |
| 11. St. Mich. Archange, p. q. o. | 26. Beurré Clairgeau, p. q. |
| 12. Seckel, p. | 27. Winter Nelis, p. q. |
| 13. L. B. de Jersey, q. | 28. Lawrence, p. o. |
| 14. Beurré Bosc, p. | 29. Glout Morceau, q. |
| 15. Sheldon, p. | 30. Easter Beurré, q. |

Another classification would be thus:

Nos. 1—5 are summer varieties.

6—10 are early and middle autumn do.

20—26 are late autumn do.

27—29 are winter do.

30 is a spring variety, often keeping till April.

The letters *p* and *q* against the names mean respectively pear roots and quince roots, the letter first placed indicating the preferable mode of cultivation. The letter *o* indicates a naturally ornamental habit of growth. A man of taste would always give these varieties a conspicuous situation, while he would endeavor to keep such "sprawlers" as numbers 3, 27, &c., out of sight.

It would be much easier to double the number of pears in the above list, than to select from it ten or fifteen varieties which should combine the largest proportion of desirable qualities.

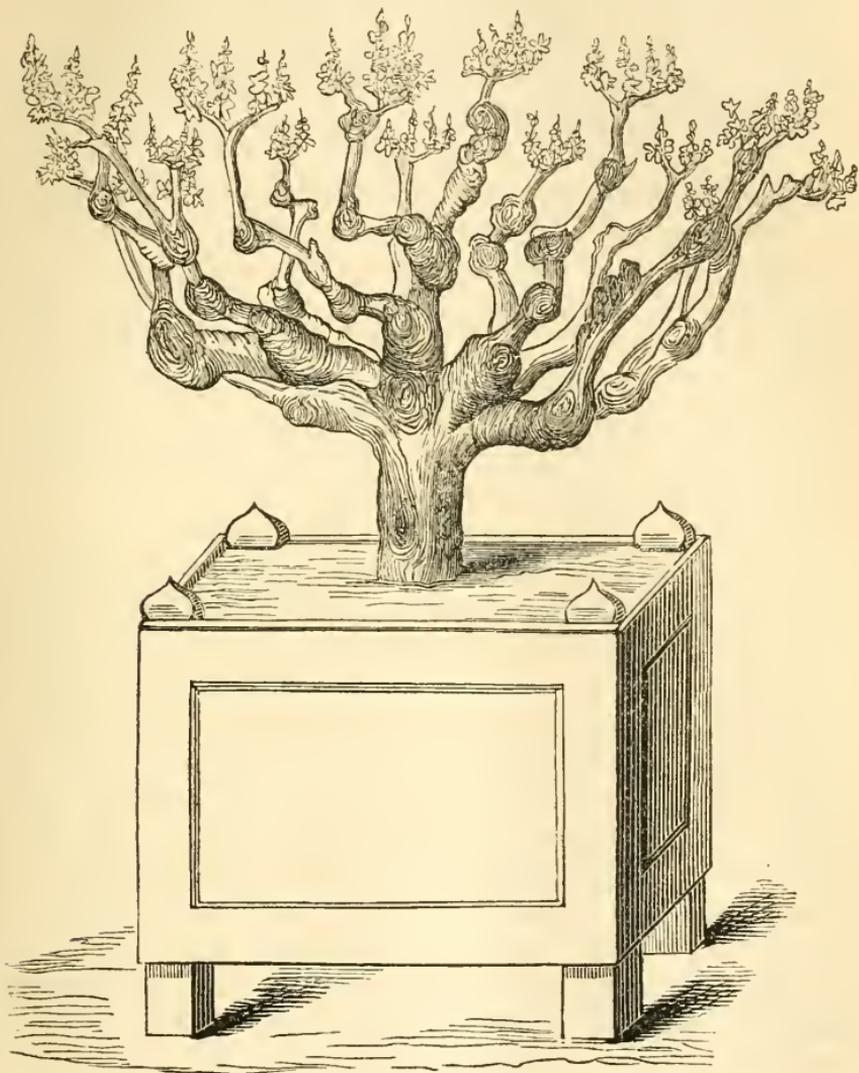
STANDARD GRAPE VINES.

THE vine, as is well known, is one of the most tractable of fruit trees, and may be trained in almost any form the fancy of the cultivator may desire, whether on the upright, horizontal, fan shape, or a combination of all these or other modes of training generally recognized, good crops being the result, if a fair amount of judgment has been used in the operation. Yet in all these modes, none have made the attempt without some support for the vines.

But it has been left to the ingenuity of the French to train the vine as a STANDARD, and M. Montangon, a cultivator heretofore unknown, has appeared to claim the honor of first initiating the experiment, and carrying it successfully into practice, of forming vine standards, which Dr. Lindley thinks, very justly, "may possibly be found applicable to vines in orchard-houses." We see no reason ourselves to doubt this result, and more with this view than any other we copy the engraving (FIG. 12) illustrating the system.

There is no reason unless the expense in our own country, where labor is dear, will be too great, or a difficulty arise in procuring skilful men to perform the operation, why a similar mode of training may not be pursued in the open culture of the vine. A Delaware, Concord, or even Diana grape would be a most ornamental appendage to the amateur's

garden trained in this way, though it might not be applicable or advisable in extensive vineyards. However, we give the illustration, and trust some of our more enthusiastic cultiva-



12. STANDARD GRAPE VINE.

tors will make the attempt. As specimens of pot culture for exhibition they would be exceedingly interesting.

The following is the notice accompanying the illustration. We only regret that we have not the details respecting it, though the report of the committee of the Horticultural Society of the Gironde and the award of a gold medal would

seem to be ample. That it has been so long pursued by M. Montangon and not before noticed is somewhat surprising. Fifty years' practice ought to be confirmatory of this system of training, and that it is still followed proves that it is successful with his vines, which are under vineyard cultivation. Perhaps at another opportunity we may have further information upon the subject:—

Among what may be called the *curiosities of training*, is the following, which may possibly be found applicable to vines in orchard-houses. M. Montangon, of Laudournerie in the Charante, has received from the Horticultural Society of the Gironde, a gold medal, "for the beauty, vigor, and abundant bearing of his vines, to be attributed," as the judges believed, "to a peculiar manner of training." This method they call "vignette training," (*en cul de lampe*), the nature of which is illustrated by the annexed figure.

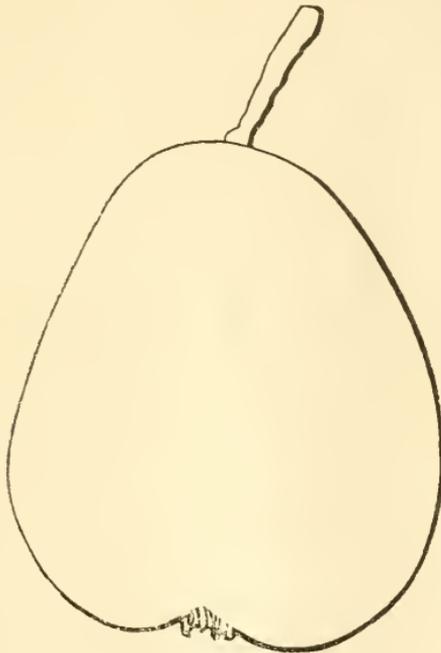
About the year 1800 this style of management was commenced by M. Montangon, on rather more than fifteen acres of vineyard occupied by white grapes, which have never since been trained in any other way. It has the advantage of doing away with stakes or supports after the vines are ten years old, and insures the equal ripening of the grapes. It is stated that every twenty-four plants produce rather more than five gallons of wine, which indicates pretty well what weight of grapes each plant may be made to bear. As this method of management is not described, the gardener must judge for himself how to set about it; no very profound problem to solve. Such plants would create quite a sensation in an exhibition. Perhaps M. Montangon would part with a few plants ready trained.—(*Gard. Chron.*)

LYON PEAR.

BY HON. J. M. EARLE, WORCESTER, MASS.

FOR several years past, we have had reports of a new pear which originated at Newport, R. I., and succeeds so remarka-

bly well in that region as to have become very popular. It appears to be a seedling of the Buffum pear, the tree having a similar growth in form, vigor and hardihood, the fruit almost exactly the same form as the Buffum, as the accompanying outline will show (FIG. 13), and like it, too, in its great productiveness. It is a handsome fruit, with a rich red cheek, and promises to be very valuable for the market, about a fortnight earlier than the Buffum, and less liable to be dry than that variety, if not gathered sufficiently early.



13. LYON PEAR.

Fruit, of medium size, varying from oblong obovate to turbinate and sub-pyriform: Skin, thick, smooth, yellow at maturity, with a fine crimson blush on one side, sprinkled with very minute dots, and russeted about the stalk which is an inch long, and inserted with little or no depression: Calyx small, the segments persistent, thick, and nearly closed, in a shallow and narrow basin: Flesh white, coarse, and somewhat gritty about the core, melting, moderately juicy, sweet and sprightly, with a fine vinous flavor; good to very good. Ripe Oct. 1st, and keeps some time.

THE CULTIVATION OF NATIVE FLOWERS.

BY MRS. ISAAC CLEMENT, MECHANICVILLE, N. Y.

As we approach the spring months it is well for the lover of wild flowers to arouse their dormant energies and prepare for weekly tramps, at least, to their native localities, for no one can cultivate wild flowers with success unless they know the situation where they are found growing,—whether in wet or dry ground, in shade or sunshine;—and as the collecting of plants is the first step towards cultivation, they should go often, or some choice variety may escape their notice. As an outfit they will need a butcher-knife to cut around the plants, far enough from them to get sufficient root, and not disturb the earth, or plants that may be attached to them; also a market basket to place them in; a pair of water-tight boots, for the spring of the year; a stout dress, and a pair of rubber gloves; some one for company or to carry your basket, and resolution enough to climb all the fences you meet with. But go you must yourself, or you will know no more about what kind of soil these wild plants want, than one who had never seen a flower. I say again, go often, for I have found plants *once* in a place, where I never could find them afterwards. Always collect seeds when you can, and plant immediately in a place as near their native situation as you can provide. Remove anything while in flower, except shrubs which can be transplanted in spring or fall, by marking the place, and shrub, so as to be found when the leaves are off. After your plants are set out a while you can pull out any weeds or plants that may have been taken up with the flowers, without disturbing them in the least.

What more healthful recreation can be engaged in, both for body and mind, than a ramble in the woods, if for no other purpose than to gather bouquets or wild grasses, to hear the music of the feathered songsters, the sighing of the wind among the trees, or the rippling of the water in the little creek as it rushes over its rocky bed. The remembrance of rambles in by-gone days causes me to look forward with anxiety to the time when the snow will disappear, and the trees and plains again will resume their summer dress.

As my page is nearly full, I must leave special cultivation for different varieties of plants for another number, if you think they will be worth the space they occupy.

We welcome with the greatest pleasure the communication of our fair correspondent to our pages, assured that the success which has attended the growth of many of the beautiful native plants of our woods, pastures, swamps and hills, under her care, will enable her to give such good advice as to enable all who have the desire, to cultivate successfully many of these treasures, which are, we regret to add, so sadly overlooked and neglected.

Truly enough, one must go often to the localities where they grow, and notice particularly the situation and soil, on which everything depends. Our hill-side violets will not flourish in damp shady places, nor our lovely gentian in a dry, sunny situation. Each must, as near as possible, have a similar soil and locality to that where it was found wild. Some require peaty earth, others sandy soil, and others deep loam, and while all may grow without this exactness, their full development can only be obtained with it. But we are anticipating the practical experience of one who is able to give directions better than ourselves. We shall look with great interest to future communications.—ED.

THE VARIEGATED BEGONIAS.

BY THE LONDON HORTICULTURAL SOCIETY.

THIS class of popular ornamental-foliaged plants has attracted so much attention, and so many new seedling varieties have been produced, that the London Horticultural Society made a collection of all the prominent sorts with a view to examine their merits and report thereon, that cultivators, who could cultivate but a limited number, might have some guide in the selection of the most distinct varieties. This object was accomplished last year, and the report is now published in the proceedings of the society. The plants were

under the charge of Mr. Eyles, a skilful gardener, and the report is by Mr. Moore, secretary of the floral committee.

Although we have already in our article last year, (Vol. XXVI. p. 131), given a detailed description of such as had then come under our observation, we think we cannot serve the interests of all who appreciate this most remarkable tribe than in copying the report of Mr. Moore from the *Gardeners' Chronicle*. Some amateurs have predicted a short-lived notoriety for these Begonias. We certainly regret that there should be any real lover of plants who could be so insensible to the great merits of these truly wonderful decorative objects of the conservatory as to venture such a prediction. On the contrary, so much have we been delighted with them, and so popular have they become, that we believe they will ever be considered among the few treasures which are indispensable in every choice collection.

The remarkably showy race of dwarf Begonias, having the leaves marked with elegant variegations, had become so much extended by the production of seminal varieties since the introduction of *B. Rex*, that attention was very early directed by the committee to the collecting of as many of these varieties as could be readily procured, in order that their respective merits in an ornamental point of view might be determined by direct comparison. For this purpose about forty varieties were obtained in the spring of 1860, and of these thirty-six are described in the following memoranda, the remainder having either died or been too imperfectly developed to admit of their true character being seen.

This extensive collection was liberally contributed for the purposes of the committee by the following gentlemen, viz.: Messrs. Rollisson & Sons of Tooting, Mr. Veitch of Chelsea, Messrs. E. G. Henderson & Son of St. John's Wood, and Messrs. Low & Co. of Clapton.

The following classification of the varieties may assist in the identification of them:—

SER. I. ARGENTÆ. Upper surface of the leaves wholly silvered,
not zonate or vittate.

1. *B. argentea*.

Ser. II. ZONATÆ. Upper surface of the leaves marked with distinct colors, in a zonate manner.

§ 1. Leaves smallish, with bright silver zone.

- | | |
|---------------------------------|-------------------------|
| 2. <i>B. Griffithii</i> , | 5. <i>B. Regina</i> , |
| 3. <i>B. argentea guttata</i> , | 6. <i>B. amabilis</i> . |
| 4. <i>B. Madame Wagner</i> , | |

§ 2. Leaves large, with bright silver zone.

- | | |
|--------------------------------|---------------------------------|
| 7. <i>Marshalli</i> , | 10. <i>B. Rex Leopardinus</i> , |
| 8. <i>B. Madame Allwardt</i> , | 11. <i>B. marginata</i> . |
| 9. <i>B. Rex</i> , | 12. <i>B. Cloth of Silver</i> . |

§ 3. Leaves large, flushed with red, silver or green-zoned; hairy beneath.

- | | |
|--------------------------------|----------------------------------|
| 13. <i>B. Queen Victoria</i> , | 18. <i>B. nebulosa</i> , |
| 14. <i>B. grandis</i> , | 19. <i>B. rubra marginata</i> , |
| 15. <i>B. urania</i> , | 20. <i>B. Queen of England</i> , |
| 16. <i>B. virginata</i> , | 21. <i>B. Isis</i> . |
| 17. <i>B. Rollissoni</i> , | |

§ 4. Leaves wholly green and red.

- | | |
|-----------------------------|------------------------------------|
| 22. <i>B. Royleana</i> , | 24. <i>B. Prince Troubetskoi</i> . |
| 23. <i>B. Roi Leopold</i> , | |

Ser. III. VITATÆ. Upper surface of the leaves marked with silvery or other colored bands or stripes, not zonate.

§ 1. Leaves obliquely ovate.

- | | |
|---------------------------------------|--------------------------------------|
| 25. <i>B. picta</i> , | 31. <i>B. splendida argentea</i> , |
| 26. <i>B. miranda</i> , | 32. <i>B. splendida imperialis</i> , |
| 27. <i>B. xanthina Reichenheimi</i> , | 33. <i>B. splendida guttata</i> , |
| 28. <i>B. xanthina marmorata</i> , | 34. <i>B. vittata</i> , |
| 29. <i>B. xanthina argentea</i> , | 35. <i>B. Thwaitesii</i> . |
| 30. <i>B. Victoria</i> , | |

§ 2. Leaves palmately lobed.

36. *B. ricinifolia maculata*.

The plants, which were under the care of Mr. Eyles, were grown to a moderate size under uniform conditions; and on the 2d day of August, when in a well-developed state, were brought under the notice of the committee. The result of this, and of a subsequent examination, was that the following varieties were selected as the best and most distinct in the several groups, the other kinds contained in the collection being thought unnecessary where these were grown, viz. :—

In the first group—*B. argentea*.

In the second or zonate group—§ 1: *B. Regina*, *Madame Wagner*, *Griffithii*; § 2: *B. Marshalli*, *Rex*, *Rex Leopardinus*; § 3: *B. Queen of England*, *nebulosa*, *Rollissoni*; § 4: *B. Roi Leopold*, *Royleana*.

In the third or vittate group—§ 1: *B. xanthina Reichenheimi*, *splendida argentea*, *Thwaitesii*; § 2: *B. ricinifolia maculata*.

The peculiar features of the several kinds are indicated in the following descriptive memoranda:—

1. *B. ARGENTEA*.—From Messrs. Rollisson & Sons, Mr. Veitch, and Messrs. Low & Co. Leaves large, greenish gray, of a satiny texture, looking as if silvered and polished; they are speckled over with fine pencilled zigzag markings of a deeper green, and veined with light red behind. The stalks are purplish, shaggy with white hairs. It is a very distinct sort, remarkably pallid in color.

2. *B. GRIFFITHII*.—From Messrs. Rollisson & Sons, Mr. Veitch, and Messrs. E. G. Henderson & Son. This is a plant of dwarf habit, with medium-sized leaves, which are downy on the surface, and have a broad dark opaque green centre, exterior to which is a grayish or silvery zone and a dark green border of nearly equal width; the green becomes rather paler where it joins the gray. The under surface, opposite the green portions of the upper side, is red; and the stalks are pale, red-haired, and downy. This is a pretty, distinct, small-growing kind, of second-rate value.

3. *B. ARGENTEA GUTTATA*.—From Mr. Veitch, Messrs. E. G. Henderson & Son, and Rollisson & Sons. The leaves are of medium size, with a broad dark green centre, which dark green color passes along the veins in a narrow broken line through the silvered zone, so that it almost comes into the vittate series. The zone is of a clear silvery gray, becoming narrower towards the base of the leaf, and is margined with a green border of about half its own width. The leaves, as is generally the case in these plants, are marked on the under surface with red at those parts which are opposite the green or darker parts of the upper surface. The stalks are red and hairy.

4. *B. MADAME WAGNER*.—From Messrs. E. G. Henderson & Son, Rollisson & Sons, and Mr. Veitch. This is a very bright-looking variety, of moderate size. The leaves have a dark green centre, forming a tapering-rayed star, which is surrounded by a broad silvery zone, somewhat broken by the faintly tinted veins, and exterior to this by a narrow veiny or broken green edge marked with red behind. The stalks are red, hairy. It is a very pretty and effective sort, with the

surface more silvered than *B. Regina*, and one of the most desirable varieties.

5. *B. REGINA*.—From Messrs. Rollisson & Sons. This variety resembles *B. amabilis* in character, but is larger, and was considered superior to it, and a desirable kind. The leaves are of medium size, glossy, with a dark olive-green centre, surrounded by a clear silvery-gray vandyked zone, exterior to which is a dark green border nearly equalling it in width. The leaves are marked with red behind, and have red hairy stalks. The colors of the surface are distinct and well marked, rendering this a desirable sort for cultivation.

6. *B. AMABILIS*.—This is a neat dwarf kind, with rather small leaves, of which the central part, extending half way to the margin, is bright green, and the rest of the surface is about equally occupied by a zone of silver gray and a border of green. The under surface is bright red, and the stalks purplish and downy. It is a desirable small species.

7. *B. MARSHALLI*.—This fine variety has large slightly bullate leaves, with the colors of *B. Rex*, but a broader silvered surface. The deep green of the central part radiates in tolerably even lines along the course of the veins, so as to form an irregular star; the zone of silver gray is vandyked on both edges, and is nearly twice as broad as the green margin, which is blotched and spotted with gray. The leaves are stained with purple behind, and the stalks are purplish and shaggy. It is one of the very best sorts.

8. *B. MADAME ALLWARDT*.—This handsome form bears so very close a resemblance to *B. Marshalli*, which was preferred before it, that both these kinds would not be required in the same collection; and it would not be very material which of the two was chosen.

9. *B. REX*.—This fine species, the parent of most of the larger zonate varieties now in cultivation, was regarded as being still one of the most ornamental in the group. The leaves are large, somewhat bullate, deep green in the centre, tinged with red while young, the color in this part scarcely radiate, and surrounded by a vandyked zone of silvery gray, which in width is about equal to that of the green margin. The colors are definite and effective. The under surface is

dull red, marked with red veins on the lighter parts opposite the gray zone, and the stalks are purplish, clothed with shaggy hairs.

10. *B. REX LEOPARDINUS*.—This variety also bears a very near resemblance to *B. Marshalli*, but has the silvered zone somewhat broader. It was considered one of the most select and desirable ornamental varieties.

11. *B. MARGINATA*.—The leaves are rather above medium size, and marked in the way of *B. Rex*, but the zone is twice as broad as the border, and the parts are less effectively contrasted in color. The under surface is veined with red.

12. *B. CLOTH OF SILVER*.—The leaves of this variety are about the medium size, nearly covered with silver gray, having a very small pale green central star, formed by a green border to the base of the principal veins, and having also a few broken dark green markings at the edge. The leaves are scarcely bullate, and the under surface is veined with red. It approaches nearly to *B. argentea*, but the marking is obviously zonate.

13. *B. QUEEN VICTORIA*.—The leaves are large, deep red behind, a good deal like those of *B. Queen of England*, but more stained with red; and they are speckled on the dark ground color of the upper surface. The centre of the leaf consists of a small dark red-green star, speckled with silver; and the border beyond the zone is narrowish, of the same dark red-green color, dotted as in *B. Queen of England*, and speckled between the dots. The stalks are shaggy, with red hairs; and the veins are hairy above.

14. *B. GRANDIS*.—This was one of the large red-stained series, and bore so close a resemblance to the variety received as *B. Queen of England* as to have been regarded as the same for all practical purposes.

15. *B. URANIA*.—This variety had leaves about the medium size. The centre which forms a star, and the border, are both of an opaque deep green, and the intermediate zone is of a glossy bronzy green, purplish while young, but when mature of nearly the same tint as that of the centre and margins. The upper surface is sprinkled with red hairs, the under surface purple, and the stalks purplish-red and shaggy. It is rather a dull-colored plant.

16. *B. VIRGINATA*.—This variety is in the way of *B. Rollisoni*, but of a lighter color, intermediate between it and *B. Queen Victoria*. The leaves are large, hairy on the ribs above, their surface principally grayish green, a small dark reddish green star with a speckled surface occupying the centre, while the dark green purple-tinted margin is nearly covered with broken speckled markings. The young leaves are tinged with red. The veins are red behind, and the stalks are shaggy with reddish hairs. The colors of the surface are not so well marked and distinct as in some other varieties.

17. *B. ROLLISSONI*, also received as *B. grandis*. One of the very deep dull purple-stained varieties. The leaves are large, hairy on the veins above, and having the stalks shaggy, purple. The upper surface is of a dark satiny green, with a small central star of deeper red-stained green, and a border of medium width, of the same red or purple-tinged deep green, marked with a few satiny green spots. The under surface is red. It is one of the deepest colored among the varieties brought together for comparison, and the best of the deep-colored series, but is somewhat heavy looking. The red hairs on the stalk are conspicuous.

18. *B. NEBULOSA*.—The leaves are large, grayish-green, hairy on the ribs above; their centre is of a dull reddish green, forming a star with narrow-tapered radii, and the border is irregular, moderate in width, of the same dull green, dotted with grayish green; the under surface is red. The whole upper surface, as is the case in the rest of the varieties belonging to this section, is suffused with red. This variety is something in the way of that called *B. Isis*, but is less coarse, and more distinct in character from *B. Queen of England*, ranking therefore among the more desirable kinds of second class merit.

19. *B. RUBRA MARGINATA*.—Leaves large, dull grayish green, with a small star of dark green in the centre, the star speckled with the broken edge of the gray-green zone, and the margin also speckled with the same color, and strongly tinged with red. The upper surface is hairy on the veins, and the under surface is red. The stalks are red, with shaggy red hairs. This is one of the dull-looking red-stained series, closely resembling that called *B. virginata*.

20. *B. QUEEN OF ENGLAND*.—This is the finest of the large red-stained varieties. The leaf-stalks are reddish and shaggy. The leaves are hairy on the veins above, and red beneath. The upper surface is of a reddish olive green in the centre, the color breaking out into broadish rays, which are more distinct than in *B. Rex*, and broader than in *B. Marshalli*. Beyond this is a broad silvery green intermediate zone, less pure in color than in the varieties just named; and on the outside a distinct margin of about an inch in width, of the dark green, the marginal portion being dotted with silver in distinct spots, and having a red hair growing in each spot. It is a very ornamental variety, one of the very best of the large sorts for ornamental purposes.

21. *B. ISIS*.—A large growing coarse variety of the dull red-stained series. The leaves are of a pale or grayish green, with a narrow red-tinged border, and a small central star of the same color running out into narrow rays along the course of the veins, which are hairy on the upper surface, the marginal portion is slightly speckled. The under surface is red, and the stalks are reddish, shaggy with hairs.

22. *B. ROYLEANA*.—A distinct and pretty plant, in which the back of the leaves is marked with red opposite those parts which are dark colored above. The leaves are below the medium size, glabrous and glossy above, downy beneath, angulately lobed, deep olive green in the centre, with a zone of bright green, and on the outside a narrow broken border of olive green. The stalks are green and downy. It is a dwarf plant, corresponding with *B. Griffithii* in habit, and was adjudged to be one of the first-class sorts.

23. *B. ROI LEOPOLD*.—This is a distinct and very handsome plant, with a tall erect red stem, and large leaves supported by red stalks which are shaggy with red hairs. The young leaves are also so closely covered with similar hairs, as to appear like crimson velvet. The mature leaves are green, tinged with red along the base of the veins, so as to form a reddish central star, and having a narrow margin of red. The surface is clothed with red spreading hairs, and the leaves are also marked with red beneath. It is a very fine ornamental plant, and was considered to be one of the most desirable kinds in cultivation.

24. *B. PRINCE TROUBETSKOI*.—Leaves large, deep satiny green, stained with purple at the centre and along a narrowish margin, and marked with red behind. The surface is hairy, and the stalks red, furnished with red spreading hairs. It is a coarser plant than the preceding.

25. *B. PICTA*.—The leaves of this variety are of medium size, very dark green, marked with obtuse oblong sinuous silvery blotches, not breaking up into dots. The under surface is barred with red, and the stalks are hairy, of a purplish color.

26. *B. MIRANDA*.—This variety somewhat approaches the zonate series. The leaves are of medium size, bullate, with a broad surface of a dark satiny green at the base, this color running out along the principal veins in tapering radii, so as to separate the silvery zone into broad radiate masses, which are broken up at the margin, and pass into dots; the edge being also marked with more distant silvery dots. The stalks are clothed with red hairs, and the leaves are marked with red behind.

27. *B. XANTHINA REICHENHEIMI*.—This variety is one of the best of the vittate series. The leaves are of medium size, red beneath, and in the young state have a reddish tinge suffused over the upper surface. The principal veins are bordered with green, and the spaces between them form radiating bars of silvery green, breaking up into dots at the edges. The stalks are smooth, and of a dull purplish color.

28. *B. XANTHINA MARMORATA*.—This plant is taller and more erect than *B. Reichenheimi*, and the leaves, which are medium sized, have a broader margin of dark green to the veins; they are marked with purple beneath, and have somewhat hairy stalks.

29. *B. XANTHINA ARGENTEA*.—This is inferior to the other forms of *B. xanthina*, the markings being of a dull (greenish) color. The leaves are medium sized, dull green with yellowish gray green bars above, and stained with purple beneath. The stalks are in all cases I have seen slightly hairy.

30. *B. VICTORIA*.—The leaves of this variety are above the medium size, red beneath, very dark purplish green along the course of the veins, and having grayish green satiny bars

between them; the darker parts are speckled over with the lighter color. The stalks are shaggy, purplish. It is rather dull in appearance.

31. *B. SPLENDIDA ARGENTEA*.—Leaves large, grayish suffused with dull red, having bright green narrow lines radiating from the base along the course of the veins, and forking towards the edge. The under surface is red, and the stalks are clothed with red hairs. This is one of the most distinct and showy of the larger vittate forms, and was considered to be one of the most deserving of cultivation.

32. *B. SPLENDIDA IMPERIALIS*.—This proved to be very similar in character to *B. splendida argentea*.

33. *B. SPLENDIDA GUTTATA*.—Leaves large, dark green, red beneath, with red hairy stalks. The surface between the veins is almost covered with dull silvery spots, from one eighth to one fourth of an inch in diameter. It is distinct, but too dull looking to compare with some other kinds.

34. *B. VITTATA*.—The leaves are of a dark velvety green, and the spaces between the veins are marked with narrow elongated bars of silver gray, the markings being broken at the edges. The under surface is red, and the stalks in all cases slightly hairy.

35. *B. THWAITESII*.—A dwarf growing plant, with dark green purple-stained leaves, marked with blotches of greenish silver gray, which radiate outwards between the veins. The leaves are purple behind. The upper surface is clothed with bright purple hairs which occur on both the light and dark-colored parts.

36. *B. RICINIFOLIA MACULATA*.—This is a very distinct sort, having palmatifid leaves, which are marked with bright green in irregular bars along the course of the principal veins, the margin being of a very dark bottle green: these colors are somewhat broken up where they meet. The parts corresponding to the dark portions of the upper surface, are red behind, and the stalks are purple, shaggy. It is a very effective plant, and was adjudged by all who saw it to belong to the first rank in respect of its valuable ornamental qualities.

THE FERNS AS CULTIVATED PLANTS.

BY JOHN L. RUSSELL, SALEM, MASS., MEMBER OF THE MASS. HORT. SOCIETY;
CORRESPONDING MEMBER OF THE BOSTON NAT. HIST. SOCIETY. &c.

WHAT is there stranger in the world of fashion than fashionable plants? The mutation of dress brings back old forms and calls them new; or invents some novelty, which, by-and-by, will be deemed entirely out of all taste. Not long ago what was there so universally admired as the dahlia; then what like the pelargoniums; then came the Japan lily, succeeded by a rush after the ornamental grasses, or in pursuit of the fuchsia; and now everybody wishes to know something of the ferns. Who does not remember *Gazania rigens* glittering in the sunshine on the front sashes of the greenhouse, forgotten, but recalled by *Gazania splendens*, because a good bedding plant? Who would hardly look at the stiff, coarse zinnias, in all their vivid and hardy summer beauty, but who is not eager to see Vilmorin's new double varieties? I can recall *Callirhoe pedata* and *digitata* more than thirty years ago, growing in the Cambridge Botanic Garden, and known as *Nuttallia*, from their discoverer. And often have I admired the *Achrostichum* (*platycerium*) *alcicorne*, *Aspidium elongatum*, and other wonderful growths, more years ago still, under the careful hand of Mr. William Carter, of that establishment. If plants are to follow the fashions, it is pleasant to find our old acquaintances getting into favor occasionally, and in no instance is this truer than in the present admiration for ferns.

The family of ferns, from the most gigantic and tree forms to the most humble and almost moss-like, may be ranked among the most interesting plants. Until very lately, nothing, comparatively speaking, was known of their natural history. Linnæus, and the earlier botanists, threw them into the Cryptogamous class, thereby confessing that any attempts to understand them were idle. Everybody must have noticed how they spring up as seedlings in the woods and among the rocks, or sow themselves in some mysterious way on the surface of the soil, and appear in the pots of other plants standing contiguous to old and maturely grown ferns, or by chance

come up as weeds from the compost used in potting. The singular dots, lines, and beaded margins of the leaf of the fern were well known, and were called seeds; sometimes these organs more nearly resembling seeds because borne on separate and capsule-bearing stems. But strange to say it, that the first published account of artificially raising ferns from these seeds, is in a paper of the Linnæan Transactions for 1794 (London), volume second, by a Mr. Lindsay; and in the London Horticultural Society's Transactions, volume third, page 338, is a detailed method, by Mr. Henry Shepherd, of Liverpool, who raised from seed fifty-four different species, the names of which he appends. From seeds brushed from specimens in the herbarium of Dr. John Reinhold Forster, perhaps fifty years old, he claims to have raised two species, the rest failing entirely—a statement which should be received with caution, as will be seen presently. But from freshly gathered ferns, the seeds of *Hemiónitis dealbata*, of Jamaica, sown on the 10th of July, 1817, vegetated on the 8th of September of the same year, and produced ripe seeds on the 5th of August, 1818; and young plants of *Polypodium giganteum*, and of a *Diplázium*, appeared in about two months after the seeds were committed to the earth. In the tenth volume of the Royal Society's Transactions (Edinburgh) for 1824, is a paper, by Rev. John Macvicar, on the germination of ferns; and Agardh, in his Botanical Text Book, published in 1829 and translated into German in 1831, also describes the process, illustrated by figures, which give accurate ideas. Other botanists, such as Kaulfuss in 1824, and Bischoff in 1828, in treating of allied genera, threw much light upon the subject; and in 1837, Mr. J. Henderson, in the first volume of Jardine's and Selby's Magazine of Zoology and Botany, published an interesting account, with numerous figures, he having watched and described the germination and growth of ten distinct species. In 1848, Leszczyc-Suminski made the development of *Pteris serrulata* the subject of an especial treatise, illustrated by six elegant colored plates containing numerous figures. The subject was also fully treated by Payer, in his *Botanique Cryptogamique*, with figures, under the article "Fougères"; so that now, with these and many

similar instances of descriptions and illustrations to be found in cyclopædias and works on botany of modern date, we are in possession of all the possibilities of the cultivation of the ferns as florists' plants.

Structurally considered, a fern consists of a stem, which may be upright and become a trunk, like the tropical *Alsophila excelsa* or *Cibotium Cumingii*; or assume the form of a creeping rootstock, as the polypodiums and aspleniums of our own flora; but equally, in both the internal structure and the protruding of abundant fibrous roots, are the same. By annual or periodical growths, the broadly expanding, leaf-like organs or fronds are pushed out laterally from the terminal bud, and consist of more or less membranous, green expansions of matter, stretched between numerous veins or ribs; and, when mature enough, bearing on their backs and near the veinlets, dots or marks containing a multitude of variously formed elastic rings, closely packed together, often surrounded by jointed threads and covered with the skin or epidermis of the frond, which detaches itself in the form of a scale when these rings are ripe. Each ring contains many dust-like points, which are what have been considered the *seeds*, and which are sold or advertised by seedsmen in their catalogues as such. If, however, we bear in mind the acknowledged fact that there can be no seeds where there are no flowers, or at least such floral organs as have a stamen and a germ or ovary, it is certain, either that the flower is to be sought elsewhere, or is so minute as to escape observation. But equally certain is it that these dust-like points or particles do germinate and produce new plants, so that some particular vital action belongs to them. The careful watching of the process of germination only elucidated this obscure matter. If, therefore, the back of a frond, or even one of its divisions, which has ripened seed-dots upon it, be dusted over a clean piece of plate glass, and a drop of pure water (if distilled so much the better) be let fall upon the glass and the whole be covered with a very *thin* piece of clean glass, in a short time the individual particles can be seen germinating under the microscope. By feeding this glass slip with moisture for several days, this interesting process can be watched. Each indi-

vidual particle of fern dust, or *spore* as it is properly called, is a little bulb, or bulbil, and on application of moisture and sufficient heat splits open and pushes out two delicate cells—one in the form of a radicle, the other broader, in the form of a sort of sprout or bud, filled with green particles. By the usual law of growth of the primitive cell, other cells rapidly grow from this first one, extending both laterally and lengthwise. The evidence that the seed-dust has germinated, therefore, is in noticing upon the surface of the soil numbers of thin, flat, or crisped emerald-green flakes, about a quarter of an inch broad, or even less. If one of these bodies be carefully taken up and washed in pure water, and then magnified, it will be found to be a highly cellular and delicately thin leaf, with a deep indentation, by which it is nearly divided into two parts; and beneath will be seen a few straight and thin radicles. Each cell is also filled with greenish bodies, and after a while some two or more of such cells will be found to have elaborated two kinds of buds, which are in fact the true *flower buds*. In one kind of these buds are lodged several spiral filaments called the *phytozoa*, and which answer to the pollen grains of higher plants: by some process they find their way to the other kind of buds, or *archegonia*, and thereby impregnate them, so that a germ lying in their base shall become the axis of the future fern plant; in fact, it soon pushes a root downwards and a young frond upwards, being fed by the green disk or *prothallus*, which was the first evidence of germination, until able to care for itself. These two kinds of buds are, in their maturity, the flowers, and the fern is monœcious in its inflorescence. It *never blossoms again*, all the future means of propagation being through the medium of spores or bulbils, and of other little bulbs, which in some species are borne on other parts of the frond.

Being in Philadelphia in 1834, I examined the Schweinitzian herbarium in the possession of the Academy of Natural Sciences, and then under the care of the distinguished Dr. Charles Pickering. He gave me a quantity of the spore dust of some foreign fern in that herbarium, and which by several experiments I tried to germinate. At that time I was ignorant of the true nature of the spores, and hoped that if they

were like *seeds* they might possibly grow, though quite old. But being only propagating bulbs or gems, it is quite evident to every florist that such expectation was vain. I suspect that the spore loses its germinating property after a few months, unless perhaps carefully excluded from the air. On this account the two species from the Forster herbarium spore dust, as was supposed by Mr. Shepherd, must have been from spores already existing in the soil used, or conveyed to it by some accident. In 1853, a freshly gathered frond of *Scolopéndrium officinarum* was presented me by my friend C. C. Frost, who had just received it from Fayal, Azores. A few of the spores were sown in a large vial, and corked. They did not vegetate very readily, but, after some six months' time, several *prothalli* were seen on the moist soil. By good fortune I was able to find the flowers; and, at the end of the second year, several plants had made a second leaf. At the end of the third year they had become crowded, and were removed into a pot. They commenced growing vigorously, and on the fifth year the fruit dots or sori were appearing. Since then one of them, which was saved, has made large and vigorous annual fronds, and produced abundance of so called *seeds*, which, being again sown, I have young plants with three or four small fronds already developed. In the same way I have raised seedling *Ptèris serrulàta* and *longifòlia*, *Gymnogràmma ochràcea*, and some others, and am daily expecting a crop of *Ptèris argyrèa* from spores presented me by C. M. Hovey, Esq.

The spores of ferns will germinate on almost any kind of soil, but perhaps the best will be found to consist of a mixture of peat and sand, passed through a sieve; and it would not be a bad plan to bake it or boil it, so as to destroy the eggs of worms which injure the young seedlings when they have hatched and become grown, by burrowing beneath them and throwing their roots out of the ground. Having filled the seed pot or shallow pan with enough soil, over a quantity of broken potsherds, the spores are to be dusted thinly upon the surface, pressed down slightly, and watered with a very fine rose, until the soil is saturated with moisture. A bell glass should be pressed down at its edge so as to exclude the

air, and the pot set in some warm, shady place, taking care that the soil does not get dry. When the young plants have grown enough they are to be thinned out, tilting the bell glass a little now and then to give air to them that remain. Care is also to be observed in hardening the seedlings after removal, as they are extremely delicate at that time.

The charming collections of ferns which are being made in the vicinity of Boston cannot but prove advantageous to an increasing taste towards this branch of plant culture. It was with great delight that I saw the numerous species in the possession of Messrs. Evers and Comley, at the Nonantum nursery, Brighton, last spring, and am indebted for the courtesy shown me on my visit. Similar rare and curious species I afterwards saw in the hothouses of B. K. Bliss, of Springfield, and I doubt not that large numbers of species could be seen elsewhere, but of which I am only so unfortunate as to be ignorant. The Messrs. Hovey & Co., of Cambridge, are interested in these plants, and are, I learn, sowing the spores for an increase of their stock.

There are many New England ferns which are exceedingly pretty for hardy culture. They will grow anywhere, if shade particularly is given them. On this account they are admirably adapted for city yards and front enclosures, where shade trees otherwise injure the ground beneath them for any kind of summer vegetation. Sometimes these hardy and accommodating plants sow themselves spontaneously in some cool, shaded city street, where the north side of the dwelling-house has a sufficient area of a foot or two in width, and where the space is not wide enough to form a path. Here, unmolested by weeds or touch, they will spread out their green, lustrous fronds, striving to wrest from utter sterility the vacant strip of soil. In the chinks of an old, ruinous cobble-stone wall, which I used to pass every day close by the sidewalk, grows the delicate and tender green *Cystopteris fragilis*, which has planted itself in the streets of the town, leaving its rocky clifted home in the pastures; and the sensitive fern (*Onoclea sensibilis*) shows a partiality for the garden, where it was introduced years ago. The Maiden hair (*Adiantum pedatum*) is a most lovely plant, and will repay

its admirer for its care of it in his border; and the *Aspidium achrostichoïdes*, which I once gathered in some very pleasant company on a bright day in July, contents itself to dwell and produce fertile fronds in my yard beneath the shade of the *gleditschia* trees. I once preserved the walking leaf (*Campotosorus rhizophyllus*), which I brought from the banks of the Hudson River, in a common glass jar, for several years, giving it a sufficiency of soil and light for every purpose it needed them; and any one who has seen the noble feathery fronds of the *Struthiopteris germanica*, growing in all its native vigor, would take some pains to transplant it to his own private grounds. The little dwarfish *Woodsia obtusa* and *ilvënsis* would grow upon a rock work, and be a set-off for the black-stemmed and delicate *Asplenium ebëneum* and *trichomanes*. Even the singular *Botrychium lunarioïdes*, which appears in the latest autumn when all other vegetation is perishing, will grow readily in cultivation; and the *virginicum* is one of our most beautiful of ferns in rich woods. In the garden of a wealthy citizen, whose conservatory is full of camellias, and who has ranges of glass for vines and greenhouse plants, there has sprung up a plant of *Aspidium marginale*, which is protected and admired as much as the pillars of roses or beds of pansies. I should like to see, in the little areas of Boston houses, instead of the meaningless, starved, and weedy grass plot, some clumps of country ferns, to tell, though never so sparingly, of the grand old brakes and brave masses of ferns, which still grow upon sunburnt pastures and wet meadows, where perhaps many an opulent citizen once knew and saw them in his boyhood, and among his native hills.

Desirous of making some experiments in sowing the spores of British species, should this notice meet the eye of any English admirer of hardy ferns, it would afford the writer pleasure to correspond with such in the interchange of pinnæ or fronds with ripe spores, which could be forwarded by letter.

The advantages of raising ferns from spores may be seen in the variety which is apt to spring from this artificial culture. The Harts tongue (*Scolopendrium*) which I raised differs

from its parent, and belongs to the variety *crispum*: and by reference to the last number of the Horticulturist, for March, 1861, will be seen a list of about a *dozen* varieties already known to florists from this same species. Some doubt has frequently arisen whether the ferns can hybridize like the higher plants; but I see no reason why the *phytozoa* of other species might not impregnate the archegonia of a particular kind if the prothalli of both should be in the same condition at the same time. Hence, if the spores of several species are sown together, it is not impossible that hybridity should occur; but nature, of course, must be the minister of such a mysterious union.

In the rarer species, such as the tree ferns, the raising of seedling plants would certainly be the most ready way of increasing a stock in trade. I think that abroad the *Cibotium princeps* has been thus treated, and I trust that it will not be long before we shall see, in this vicinity, some of these delightful and graceful members of the vegetable kingdom in the collections of amateurs and florists.

ARBORICULTURAL NOTICES.

THE NEW DOUBLE CHINESE PLUMS, (*Prunus sinensis pleno*.)—The entire hardiness of these new and very beautiful plants, at once places them among the most desirable ornamental shrubs we possess; surpassing, both in size and profusion of flower, the Japan *Spiræa*, both have perfectly double flowers, an inch or more in diameter; one (*alba*) is white, and the other (*rosea*) a delicate pink. When better known they will be considered indispensable in every choice collection.

STUARTIA PENTAGYNIA is another shrub of great beauty, a full account of which was given in our last number. Its late-blooming qualities will render it particularly ornamental late in the season, when we have so few shrubs in bloom.

THE NEW DOUBLE CHINESE PEACHES, (*Amygdalus persica*

pleno,) are magnificent ornamental shrubs, and add an entire new feature to the garden in early spring. Three varieties have been introduced by Mr. Fortune, and one by Siebold; the last (vesicolor fl. pl.) is particularly showy and fine, having various colored flowers on the same plant; some being white, others white tinged with carmine, and others pure carmine, and the branches are clothed from the base to the summit: the mixture of all their colors produces a highly pleasing effect. One of Mr. Fortune's, the dianthifolia or Carnation-flowered, has blossoms beautifully striped. All are very decided additions to our ornamental-flowering shrubs.

*FORSYTHIA SUSPENS*A is a new species or variety of the now well-known and handsome shrub which adorns our shrubbery with its golden blossoms in May. *F. suspensa* is from Japan. It is of a slender and graceful habit, with very long pendent shoots, which are literally covered with a profusion of yellow blossoms, appearing very early. As it comes from the cooler parts of Japan it will be, no doubt, quite hardy, and a fine acquisition.

MAGNOLIA LENNE' is a new and superb variety of the Chinese Magnolia, with flowers nearly twice as large as *Soulangeana*, and of a deeper purple. In habit it resembles the latter, but is more vigorous, with large leaves, and equally as profuse in blossoms: flowering quite young, and decidedly the finest of all the varieties raised from the *Yulan* or *conspicua*. What its exact parentage is we are not informed.

WEIGELIA GROENEWEGENII is the name of a new variety, with reddish violet flowers, changing to a deep red. It has the habit of *W. rosea*, and flowers freely in the autumn.

NEW AMERICAN TREES.—A paper was recently read before the Philadelphia Academy of Natural Sciences, by Mr. S. B. Buckley, describing several new trees, found in Texas and the Southern States. The names are as follows:—

Æsculus arguta, a shrub, 3 to 5 feet high, flowering in March. Panicles 4 to 6 inches long. Hills in the vicinity of Larissa, Texas.

Halesia reticulata. A small tree; leaves 4 to 5 inches long, and 2 to 3½ inches broad. Fruit 4 winged. Banks of streams above Natchitoches, La.

Fraxinus Nuttallii. A small tree, 25 feet high; fruit 2 inches long; leaflets, 3 to 4 inches long, by 1 inch broad. Possibly it may be the *F. trepetera Nutt.* In swamps, Wilcox County, Alabama.

Carya Texana. Trees, 40 to 50 feet high. Leaves, 7-9, broad ovate, or ovate lanceolate, sharply serrate, smooth on both sides. Fruit globular, slightly four angled. Leaflets 6 to 8 inches long, and 2 to 3 inches broad. Dry soil. Common in Upper Louisiana.

Quercus Shumardii. A large tree, with shining, deep-green leaves, those on the upper portion of the tree being much and deeply lobed. Acorn resembles *Q. rubra*. Its leaves retain their greenness long after the first frosts. Upper Louisiana, and Eastern and Middle Texas.

Quercus Texana. A tree, 60 to 70 feet high, very like *Q. Phellos*. Acorn, 1 inch long. Leaves, 4 to 8 inches long, by 3 to 5 inches wide. A beautiful tree, with dense green foliage.

Quercus Durandii. A tree, 20 to 30 feet high, with obovate, entire, or slightly 3-lobed leaves. Acorn round, branches light gray, similar to the *Q. alba*. Alabama, Upper Louisiana, and Texas.

Quercus annulata. A small tree or shrub. Leaves, 2 to 4 inches long, mostly lobed. Acorn, oblong ovoid, with a depressed ring near the apex. Producing an abundance of acorns. Common in the vicinity of Texas.

It is doubtful whether any of these trees will be hardy in New England, though a trial might be made.

General Notices.

PRINCE OF WALES RASPBERRY.—Allow me to direct attention to this with us, the finest of all red raspberries. It is a vigorous grower, a great bearer, and produces fruit of excellent flavor, particularly last season, the worst in this part for hardy fruits of all kinds for many years. I intend to discard all other kinds, and grow nothing but Prince of Wales. On a long row of it, in which the canes were left full length, the crop was very heavy. I never shorten the canes, as I find that by leaving them full length I get greater crops.—(*Gard. Chron.*)

ROSES FOR THE MILLION.—I think I have hit on a way to strike roses so as to place them within the reach of every one. Those who can obtain cuttings now, can have a blaze of bloom next summer, and none can fail, provided they observe the following instructions. As soon as the cuttings are prepared, place them in layers in boxes or pans, and bury with moist sand; place them so as to get a bottom heat of about 70°, no matter whether on pipes, flue, or dung. The only thing to guard against on a flue, is getting the sand too dry, so as to shrivel them, for the secret of striking cuttings in this way is to prevent loss of sap by evaporation. Mine are placed on top of an underground flue in a bin with seakale, and covered with leaf soil to prevent the sand drying. After being so placed for a week I examined them, and to my surprise and delight I found all callused. I believe many hard-wooded things, that are now considered difficult to propagate, may be struck in the same way. I am now trying experiments with other things, on which I hope to report hereafter.—(*Gard. Chron.*)

SIMPLE MODE OF PROPAGATING HARDY AZALEAS.—In spring, before the leaves burst, M. Jaeger bends down branches into the peat soil beneath, places on them some stones, and covers the stones with moss, watering copiously afterwards, and again in hot weather occasionally. He protects the stocks with litter through the winter, uncovers the plants in the spring, and in the fall following the whole surface is matted with roots, when they are taken up and divided. He thinks rhododendrons and other hard striking plants would do as well.—(*Garten Flora.*)

NEW MODE OF GRAFTING.—The French are practicing a new mode of grafting. It can be performed at any season of the year, when sound mature buds can be had, whether the leaf is in a flowering state or not. It is performed by removing a small piece of bark and wood, leaving a smooth and flat surface, to which a similar piece, containing the bud, which is to form the future tree, is fitted, which is sealed over immediately with cullodion. This forms a strong impervious cuticle, which secures a free circulation of sap on the approach of warm weather, and a perfect union of the parts.—(*Gard. Chron.*)

NEW SPECIES OF CUCUMBER.—Mention is made in the *Revue Horticole* of a new *species* of cucumber, called Arada, the *Cucumis Anguria* of Linnæus. According to M. Naudin, it is a prodigious bearer of little fruits about as big as a hen's egg when ripe. Half a dozen plants gave, in 1859, eighteen or twenty pounds weight at a single gathering, and as many more were left on the vines. It is described as a small-growing species in the way of *Cucumis prophetarum*; the fruit, when ripe, is rather longer than broad, egg-shaped, pale green, with a yellowish tinge. It is eaten cooked in various ways; when merely fried in butter the fruits are very nice. If to be dressed in perfection, they must be gathered when half grown, at which time they are the size of a walnut, very tender and extremely good, as at that time their seeds have not begun to form, so that there is no occasion

to scoop out the middle. They are not so good when ripening. M. Naudin says that this cucumber continues in bearing for a long time—a single plant will give fruit for six weeks and more; so that if a constant succession is sown, the little cucumbers may be had all the summer long.—(*Gard. Chron.*)

HOW TO DESTROY SLUGS.—We are assured that if the strings used to tie up vines in the Bordelais are steeped in sulphate of copper, no slugs will come near them. The writer affirms that all such vermin have an incurable aversion for whatever has had this salt applied to it. Another writer in the *Revue Horticole* tells us that he can trap snails and slugs to any amount by another way. He left in his garden a jar containing starch, saturated with iodine, with a tile loosely put over it; there it remained all the summer, fully exposed to the sun. What was his amazement at finding, at the end of the first three weeks, that dozens of snails had found their way into the jar from all parts of his garden. What was not less curious, the snails continued to travel to this jar all the summer long. This is supposed to have been brought about by the snails liking the smell of iodine; and it is suggested that if iodine is dissolved in water which is poured upon sawdust, or even upon the earth itself, slugs and snails will enjoy themselves in it, and thus be trapped. Does iodine act, then, like Valerian and Dittany of Crete on cats?—(*Gard. Chron.*)

CHAMÆROPS FORTUNEI.—This palm is now well known as “Mr. Fortune’s Chusan Palm,” and has attracted considerable attention on account of its comparative hardiness. It is, indeed, the most hardy of all these princes of the vegetable kingdom that is yet known to us, and the only one that has been proved to stand unprotected throughout the last ten winters in the latitude of London. In the Isle of Wight, under the shelter of the royal residence of Osborne, it has attained a height of ten feet in the open air—six feet being the height of the stem below the foliage, and its diameter fourteen inches at one foot from the ground. It has blossomed for the last three years, with no protection during the winter. Our plants at Kew were introduced by Mr. Fortune, in 1849, and have attained eight feet in height; the finest are moved into a conservatory during the winter, but others receive no other protection than a matting in the severest winter months.—(*Bot. Mag.*)

MUSHROOM CULTURE.—As mushrooms are a delicacy most people are fond of, although not so universally grown, I think, as they would be were their culture known to be so simple that any one possessing the convenience of an outhouse or cellar, with a temperature of from 48° to 55°, and a little short dung, may grow them, I beg to offer a few remarks to those who may not yet have attempted their culture, as to the way they may be produced in abundance with a very little care.

In the first place, if short dung, fresh from the stables, is to be had, so much the better; but I have grown abundance on beds made of short dung three months old. However, let it be which it may, procure as much as

will make a bed sixteen inches deep and any required size, throw the same together for a few days to heat and dispel the greater part of the moisture, then throw it down for a day or two to cool and dry, after which again throw it up together for a few days—generally about five or six will be found sufficient. It will then be fit to make the bed with, which, let the size be what it may, should be about sixteen inches deep. In making the bed, take care to tread or beat it firm. As soon as the bed shall have risen and declined to 75° it is ready to spawn. I find Cutbush's Milltrack to be the best spawn I can procure. Half a bushel will spawn a bed ten feet square. This, broken in pieces the size of small apples, placed just in the dung and covered two inches deep, in any garden soil well beaten down, will produce abundance of mushrooms in six or seven weeks, in a temperature of from 50° to 55°.

A bed thus treated, twelve feet by seven, spawned with half a bushel of spawn obtained from Messrs. Cutbush, of Highgate, has produced me above eighty pounds weight of mushrooms of first-rate quality—many not thoroughly open weighing four ounces each. The bed is now in full bearing, and has been since the 7th of October, and likely to produce at least half as many more with no further care than above enumerated, with the exception of an occasional watering when dry.—(*Cottage Gard.*)

DECORATED ROSES.—Mr. Rivers, in his new edition of the *Rose Amateur's Guide*, gives the following directions for making what he calls decorated roses:—

“A few years since, a friend, living at Weycliffe, near Guildford, found the heavily built brick bridge leading over the railway to his house (this is, however, in his grounds, so as to be private) conspicuously ugly, and he wished it to be hidden by evergree-climbing plants. As the carriage road ran over the bridge, the gravel, of which it was made, did not seem to offer very happy quarters for any plant but ivy, which was objected to as being too heavy. I then proposed planting it with varieties of *Rosa sempervirens*, or, as we ought always to call them, Evergreen roses. They were with some difficulty planted, the gravel being loosened with the pick, and some manure mixed with it. In my annual visits to my friend living in this charming district—for no part of England is more so—I watched with some interest my bridge-roses. They grew with great rapidity, and soon covered every brick; but when they bloomed in large, beautiful masses, some disappointment was expressed at the monotony of color. I was prepared for this, and told my friend that they must be decorated. A good-natured, incredulous smile met me with ‘how?’ I called the gardener,—for this was in July, the budding season,—went with him to the rose-garden, and thence took buds of some of the most beautiful of the dark Hybrid Perpetual roses, not forgetting some of the bright rose-colored tints, such Colonel de Rougemont, La Reine, General Simpson, and some others. Our great ‘horse’ was, I remember, General Jacqueminot. My budding hand had not forgotten its cunning, for did I not consider myself, at twenty, as the most dexterous and rapid budder of roses that ever lived and was likely to live?

So I and the gardener proceeded to place buds here and there in shoots favorable for the purpose. The day was warm, and the thorns much sharper than they used to be forty years ago, so I have a misty idea that my friend Jackman, the gardener, put many more buds in than I did. To use the common phrase, nearly all the buds 'took,' i. e., lived, and many of them put forth fine clusters of bloom the following August and September. I paid my annual visit to my friend in June of the next year, just eleven months after my budding exploit. As I approached the bridge I felt full of interest about my buds. What a glorious sight met my eye! Amid the masses of flowers of the pale climbing roses shone forth large clusters of the *Géant*, *General Jacqueminot*, *Triomphe des Beaux Arts*, *Prince Noir*, *Comte Robinsky*, *Louise Peyronny*, *Colonel de Rougemont*, *Jules Margottin*, and others: the bridge was a fairy avenue, so charming was the effect.

I have a full and fervent belief, that, ere long, banks and avenues of decorated roses will be in every rose-garden, and that their culture will be carried to an extent we at present scarcely dream of. I have one rose friend who has formed his rose-walk with network of iron wire, fastened to upright iron rods; the meshes formed by crossing the wire occasionally, are twelve to fifteen inches in diameter, so as effectually to support the shoots of the climbing roses.

This walk, in the course of a year or two, will be between two upright walls of 'decorated roses,' and I can scarcely imagine anything in rose culture more beautiful. It must be borne in mind that no arches, unless some fifteen feet apart, and no arched coverings must be placed over a rose-walk or avenue of this description, for the finer kinds of roses require all the light and air they can have.

For pillars, banks, coverings for walks, and every fancy that can enter into the mind of a rose lover, these budded climbing roses are adapted, and they will well reward the ingenuity of a clever rose gardener; in many cases superseding the use of standards, which are for a great portion of the year so very ugly.

The 'how to do' these roses is very simple. If very rapid growth be required, the place in which they are to be planted should be well stirred to a depth of two feet, some manure mixed with the earth, and climbing roses of such sorts as *Félicité*, *Princesse Louise*, *Princesse Marie*, and *Spectabile* (all varieties of *Rosa sempervirens*), should be planted in November; if they have strong shoots, they may be tied or fastened up to nearly their full length; if not with long and strong shoots, they may be cut down to within five inches of their base: they will in the following season make shoots from ten to twelve or fifteen feet in length. The first shoots that will be fit to bud will be the old shoots that were left at full length when they were planted; these may be budded in June, and the young shoots that are made during the whole of the summer may be budded weekly till the end of September: the position of each bud must be thought of so as to make a picture really artistic and beautiful. As soon as a bud is inserted, or if two or three buds are placed in the same shoot, the end of the shoot

must be cut off to within two buds of the topmost inserted bud; the buds may be untied about three weeks after insertion, and all the young shoots that break out below the inserted buds must be rubbed off; this is all that need be done the first season. The next season the buds will bloom abundantly, and it will only be necessary to destroy all the young shoots that break out of the budded branch below the buds; those shoots that break out above the inserted buds may be pinched in frequently, the budded branch will not then become rigid and starved like the stem of a standard rose.

In decorating climbing roses, the buds should be dotted over the whole surface of the plant. Two or three buds in one branch will be found enough, and care must be taken not to bud every branch of the climbing rose—some must be left to grow in their natural, graceful, vigorous manner, so that the decorated wall or walk has not a stumpy appearance, like an avenue of standard roses.”—(*Gard. Chron.*)

CANNAS FOR FLOWER-GARDEN CULTIVATION.—A. M. Hubéda, a Paris florist, advocates the introduction of *Cannas* into flower-garden cultivation. He says that such species as *C. Annei*, *Warcezewitzii*, *indica*, *discolor*, *gigantea*, and *Sellowi* will pass the winter very well out of doors, provided they are protected from cold, and most especially wet in winter, by a bed of leaves. It is, however, necessary to take off the leaves now and then in dry weather. M. Hubéda further states, that masses of *Canna indica* and *gigantea*, treated in this manner, have gone through the winter very well in the Bois de Boulogne, and that in the second year their stems were from three to three and a half yards high. If so they must have had a grand tropical appearance. It seems that the plants are started in a hotbed; that they then throw out suckers, which easily root, without damaging the mother plant; these suckers must, however, be handled gently, as they are very brittle. The right soil for them is three parts of leaf mould and one of peat. While young, after having been potted off, they will not bear wet; and in fact should only be syringed. But when their new roots begin to line the pot, then is the time for plentiful watering and repotting. The rest of their treatment presents nothing peculiar till the time arrives for turning them out. They should then be planted in good garden mould and rotten dung, in the hottest place that can be found.—(*Gard. Chron.*)

GROWING ROSES AMONG THORNS AND GRASS.—Prof. Owen's dodge for making fine roses grow *in defiance of such neighbors as the thorns and grass, and weeds of a wilderness*, is thus noticed by Mr. Rivers:—

“Large sewer tubes, rejected on account of flaws in the enamel-lining, were sunk vertically in the pure gravelly soil to within an inch or so of the surface, and filled in with loam and manure, and a rose planted in the centre of each. The soil in the tube was kept free from weeds, and the running grass and other weeds outside were prevented making their way into such good quarters. To give the roses extra vigor, some manure water was given to them occasionally in the summer. The inside diameter of these

tubes is sixteen inches, their length thirty inches, so that they go below the roots of weeds, which would otherwise soon devour the rich compost in which the roses delight.”—(*Gard. Chron.*)

Obituary.

DEATH OF MR. EDWARD BECK.—The horticultural world has sustained a great loss in the death of Mr. Beck, of Isleworth, near London. Though for several years retired from the more active participation in floricultural affairs, he has been no less interested in the favorite pursuit of his leisure hours. Few men have done more for the promotion of a pure, unselfish love of flowers. At a great expense and inconvenience to himself, he commenced the publication of the *Florist*, solely with a view to increase the taste for florists' flowers, and lead the public to a higher appreciation of the pursuit than the then current literature was likely to do. In this he succeeded; and the petty personal attacks which found a place in some of the periodicals, gave way before the good example which was set by Mr. Beck. Floriculture at once brought within its ranks another class of men, who have given it the high estimation it has of late years attained.

Mr. Beck was best known as a raiser of seedling pelargoniums, commencing their growth just at a time when it was thought there could be no further improvement. But his success was so great that he not only inaugurated a new passion for it, but encouraged others to follow in his lead; and to Messrs. Beck, Hoyle, and Foster are we indebted for the truly magnificent varieties which now enrich our collections.

We have not space to give an extended account of his life. He was a self-made man. Commencing life as a sailor, afterwards a manufacturer, then a nurseryman and horticultural writer, and latterly an amateur, he fulfilled the duties of each situation. A little volume from his pen, entitled, “A Packet of Seeds sown by an Old Gardener,” had an extensive sale, showing that his heart was in the cause. A more valuable work could not be placed in the hands of both gardener and employer. A correspondence with Mr. Beck for some years, and business transactions with him, revealed to us a man of talent, integrity, and the kindest feelings. Through us he presented the Massachusetts Horticultural Society seven pounds sterling, to be awarded in premiums for the best pelargoniums, and as an encouragement to its cultivation. He was elected a Corresponding member of the Society.

Mr. Beck was, in religious belief, a Quaker; but a clergyman of the English Church thus closes a notice of his death: “As one looks on the death of such a man, however we may differ on some points, knowing his love to his Saviour, may we all say, as it is recorded that a Romish priest once said, as, standing by the open grave, when, in a period of wars and troubles, they were committing to its resting-place the body of the saintly Bedell, Bishop of Kilmore, ‘Oh, sit anima mea cum eo!’ or, in the words of THE BOOK, ‘May my latter end be like his.’”

Massachusetts Horticultural Society.

Saturday, March 2.—An adjourned meeting of the Society was held to-day,—the President in the chair.

The Executive Committee reported that they had considered the subject of salaries to be paid the Fruit, Flower and Vegetable Committees, and advised the amounts to be as follows:—To the Chairmen of the Fruit and Flower Committees, \$75 each; and the Vegetable Committee, \$50, which was accepted.

The Committee of Arrangements was authorized to prepare a list of premiums for plants at the Annual Exhibition, to be printed and ready for the use of the members, at the meeting in April.

A letter was read from Dr. Hayes, accepting the office to which he was elected.

John Runey and James Comely were elected members.

Meeting dissolved.

March 16.—*Exhibited.*—**FLOWERS:** From Hovey & Co., thirty varieties of Camellias, among which were specimens of their remarkable seedling, producing various colored flowers on the same plant. Four blooms were exhibited; one white; one white, flaked with carmine; one blush, striped with carmine; and one, pure rich carmine; all of exquisite form. Also, splendid flowers of the Scarlet Seedling, to which the Society awarded the gold medal a few years ago. A new seedling Azalea, Beauty of America, in the way of Beauty of Europe, but more distinct and brilliant, the petals being conspicuously splashed and striped with scarlet. Also, specimens of a new hybrid bedding Geranium, Dolly Dutton, very dwarf, compact, and fine, the plants six inches high, covered with flowers.

From J. McTear, cut flowers of Azaleas, Cineraria Slough Rival, very fine, and other flowers; also, a pretty plant of Azalea Iveryana, white striped, very handsome.

AWARD OF PREMIUMS AND GRATUITIES.

CAMELLIAS.—For the best, to Hovey & Co., \$6.

GRATUITIES.—To Hovey & Co., for Camellias, \$4.

To J. McTear, for cut flowers, \$2.

March 23.—*Exhibited.* The show of Azaleas was to have taken place on the 16th, but owing to the severe weather it was postponed until to-day.

The culture of the Azalea, strange to say, has been rather neglected, and it is only within a few years that anything like handsome specimens have been shown. The uncertainty of bringing out plants at this early season has tended undoubtedly to prevent their being exhibited, while some little difficulty in retarding their flowering has operated against their being shown later in the season, as in Great Britain, where the plants are in perfection in May and June. We hope this practice may be adopted in our Society.

Messrs. Hovey & Co. exhibited nine Azaleas, viz.: coronata, crispiflora, Criterion, Gledstanesii and variegata, Carnosa superba, Glory of Sunning

Hill, Leopold II. (new,) Triumphans and Bealii. Criterion was a fine standard, in perfect bloom, and the first six, except Glory of Sunning Hill, were all large specimens, in full bloom; also Cineraria Brilliant, (new variety,) very dark; the new and pretty Acacia Drummondii, and the rare Exochorda grandiflora, which has proved *entirely hardy* in England the past cold winter, a sufficient test that it will prove as hardy here as the Weigelia; it has spikes of pure white flowers, as large as the common Syringa, and will be a decided acquisition; four new and elegant Ixias, and cut flowers of Azalea America, a new white, very large and of great substance; A. Mattapan, and a new seedling white, with a yellowish blotch on the upper petals, which are fringed in the way of crispiflora. The new Abutilon Duc de Malakoff, and the same seedling Camellias exhibited on the 16th, &c. &c.

From Jona. French, seven Azaleas, viz.: *magnifica*, *exquisita*, *Decora*, *Prestantissima optima*, a white variety, and *Beauty of Europe*. These plants were fine specimens of careful training, but some of them rather past their prime. Also, *Epacris lævigata*, a very handsome variety, and other plants.

From Evers & Comely, two fine Azaleas, *Decora* and *exquisita*, the former in superb condition, one mass of bloom.

From Barnes & Washburn, four heaths, including *Cavendishii*.

From James Murray, cut flowers.

AWARD OF GRATUITIES.

To Jonathan French, for six Azaleas, \$10.

To Hovey & Co., for six Azaleas, \$8.

To Evers & Comley, for two Azaleas, \$4.

To Hovey & Co., for Ixias, \$3.

To Jonathan French, for *Epacris*, &c., \$3.

To Barnes & Washburn, for heaths, \$2.

To Hovey & Co., for *Cineraria Brilliant*, \$1.

To Hovey & Co., for *Acacia Drummondii*, \$1.

To Hovey & Co., for cut flowers, \$1.

Horticultural Operations

FOR APRIL.

FRUIT DEPARTMENT.

THE month of March, though mild in the early part, was excessively severe at the close, being 8° or more below the average of many years, and accompanied with severe snow storms, in which more snow fell than during the entire winter, causing much damage to trees and shrubs. As we close our remarks, the ground is still covered with many inches of snow. Warmer weather must soon occur, and, as there has been abundant time to prepare for it, work should be pushed forward with all possible dispatch. Fruit trees appear to be considerably injured in the young wood by the

severe cold, and in some localities the buds of cherry trees and peach trees are quite destroyed.

GRAPE VINES, in the greenhouse and grapery, will soon have become well advanced, or will be in full bloom, or past that period. Continue to slightly increase the temperature, keeping up a uniform moisture, by damping the house in sunny weather, morning, noon, and night. Tie up the laterals, and top them as they require it. Remove the covering from the border as soon as the weather is settled, that the sun may aerate and warm it. Vines in cold houses will require immediate attention. Uncover, and tie them up to the rafters, and maintain a genial temperature; syringe in good weather, and take every precaution to have the eyes break vigorously. Vines in pots, in a forward state, should be freely watered.

GRAFTING should be attended to at once.

CURRANTS AND GOOSEBERRIES should be transplanted in good season. Plant cuttings now.

FRUIT TREES may be transplanted as soon as the ground is warm, dry, and in good condition. Many trees are severely injured in attempting to hurry this work.

ORCHARD HOUSES should now have careful attention, as the trees begin to break. Guard against any sudden changes of temperature. Trees, for another year, may now be potted.

RASPBERRIES should be uncovered. Thin out the canes, and fork manure around the plants. Tie the canes up to neat stakes.

STRAWBERRY BEDS should be uncovered, and, as soon as the plants begin to grow, the surface of the soil should be lightly stirred, removing all superfluous plants, in order to give space and air to the beds when the fruit is ripening. Prepare ground for new plantations, to be made in May.

LOOK AFTER INSECTS, and particularly to the canker worm.

FLOWER DEPARTMENT.

The late cool weather has put a stop to many operations, important, as preparatory to the full decoration of the garden. Even hotbeds have required extra protection to prevent the warmth from being wholly exhausted, while the quantity of snow and cloudy weather has been exceedingly injurious to young freshly potted plants, and seedlings. With the advent of warmer weather, however, the work should be resumed, as little danger can be apprehended so late in the season. Prepare frames for hardening off bedding plants, and sow seeds of such flowers as will be required for early decoration of the garden or greenhouse.

PELARGONIUMS will now begin to make a more rapid growth, and, unless wanted for early flowering, they should be kept cool, so as to check anything like a redundancy of wood. Tie out the shoots carefully, as they advance, so as to form round heads, and allow plenty of room for each plant. Avoid hurrying them forward, to the future injury of the plants. Fumigate for the green fly.

AZALEAS, unless kept in a very cool house, will now be in full bloom. Water liberally, and shade in the middle of the day. As soon as the flowers fade head in all straggling plants, and trim into shape any fancy

specimens, so as to obtain an early growth of vigorous wood. No plants stand the use of the knife better than the Azalea, and there is no excuse for the ill-shaped plants usually seen in collections. Young stock should be encouraged, by a warm house and plenty of moisture, to make a vigorous growth.

CAMELIAS will now be growing vigorously, and should be freely watered and syringed every fine day.

ORCHIDS should now have a liberal watering, and have a place in the warmest part of the house.

FERNS should now have attention. Repot in good turfy soil, with moss and sand, and place in a shady, warm situation, where a damp atmosphere can be maintained.

BEGONIAS, making a good growth, may be shifted into larger pots. Keep in a half-shady, warm situation.

CYCLAMENS, now going out of bloom, should be more sparingly watered.

ACACIAS, done flowering, should be well headed in, so as to obtain an early growth of good ripe wood.

FUCHSIAS, now growing vigorously, will require attention to watering, repotting, &c. Stop long rambling shoots, so as to obtain handsome and symmetrical specimens. Water occasionally with liquid manure.

CACTUSES should now receive an occasional watering.

HEATHS AND EPACRIS should have a cool, airy situation, removing the former to a cold frame, as soon as the weather will admit.

TRITOMAS, CANNAS, AGAPANTHUS, and other similar plants, should have the protection of a frame, until the season for planting out in May.

CHRYSANTHEMUMS should be propagated from cuttings.

BEDDING PLANTS should be hardened off, ready for removing to the open ground, next month.

TUBEROSES should be potted, and started in a brisk hotbed.

ROSES, out of bloom, should be removed to a frame, where they can be protected from frost.

FLOWER GARDEN AND SHRUBBERY.

The lawn, the walks, and the flower garden will claim especial attention. Improve the time, while the ground is soft and moist, to give the lawn a thorough rolling, that it may have a smooth and even surface. Rake and roll the walks, and dig and clean the shrubbery. Uncover all hardy plants and rake and clean the beds and borders. Sow seeds of hardy annuals, and transplant, to supply vacancies, or fill up spare places.

ROSES, and some kinds of flowering shrubs, may be pruned immediately.

TULIP BEDS, and other flowering bulbs, should be uncovered.

CARNATIONS should be looked to, and ground prepared for transplanting, early in May.

DAHLIAS may be started in the hotbed, for early blooming in July.

TREE PÆONIES should be pruned of all small useless wood.

HERBACEOUS PÆONIES should be transplanted.

PLANTS IN FRAMES should be wholly uncovered in all favorable weather.

GEOTHERMAL CULTIVATION.

THE severity of our climate effectually prevents the cultivation of many of the most ornamental plants of temperate climes; and while the heat of our summers—almost tropical—is sufficient to grow successfully many of the fruits of warmer regions, the difficulty of keeping them through our winters, except under glass, excludes them from general cultivation. Thus, such splendid plants as the Camellia and Azalea from China, the magnificent Rhododendrons from the Himalayas, the beautiful coniferous trees from Mexico, and the delicious fruits of Southern Europe, can only be enjoyed by those who possess greenhouses or similar expensive structures, erected especially for their production and growth.

Even the uncertainty attending the culture of our hardy fruits has but recently drawn attention to their growth under glass—in orchard houses so called—where, as in Great Britain, the danger from frosts is so frequent that this mode of culture is advocated as the only safe means of ensuring a crop. But more favored than our transatlantic friends—with plenty of solar heat and less injurious spring frosts, none but the peach and apricot among our hardy fruits are in danger from severe cold.

But these are such delicious fruits that we cannot be deprived of them even for a season, and hence graperies, both warm and cold, have been added to hundreds of gardens throughout our country, where not only the grape is raised in the highest perfection, but the peach, the nectarine, the apricot and the fig are produced in all the lusciousness of the most favored climes. Expensive luxuries they are, but what is the use of all our wealth if not to administer to our health and comfort? Our only regret is that they are confined to the gardens of the opulent, and that all cannot participate in their enjoyment.

We are, however, but just beginning to understand the principles of cultivation. Plants that years ago were thought

to require the temperature of the hothouse are now almost half hardy plants; and others which were coddled in greenhouses have now become hardy garden shrubs. So much have we learned from the geographical distribution of plants that we no longer leave to chance to ascertain that which common sense tells us must be true. No subject has really attracted the attention of scientific gardeners more than the temperature of our plant houses; and the only really successful cultivators are those who pursue the opposite of that which was practiced but a few years ago. The coddling system has had its day.

Experience and careful observation have developed many new facts, and these facts have suggested new and simple modes of culture, which not only lessen the expense of gardening operations—a very important item—but place within our enjoyment many things which had appeared beyond our means. It is to these facts that we owe the construction of cold graperies, (a yankee invention, we believe,) and later, to orchard houses—cheap structures merely to protect the trees; and now we have a still more simple and cheap method brought before us,—the Geothermal system,—or, in other words, “earth heating” cultivation, introduced by M. Naudin, of the Museum of Natural History of Paris, who has published his plan in a small pamphlet, which he calls “Greenhouses and Orangeries in the open air.” M. Naudin’s plan is to warm the soil by means of flues or hotwater pipes, and cover with textile materials, instead of glass, during winter; increasing the covering according to the intensity of the cold. Upon this plan he wintered some of the almost tropical plants with safety. It would be perhaps impossible for us to attempt to sketch briefly the *modus operandi* of M. Naudin, but we copy the following suggestions, and, commending them to the attention of cultivators, shall, in another number, give the details of his system as related in his pamphlet, and translated in the Gardeners’ Chronicle:—

“It is known,” M. Naudin remarks, “that vegetation proceeds in spring in proportion to the general advance of temperature, and numerous observations have shown that for

each species of plants there is a certain degree of heat, without which its vegetation remains inactive. One plant begins to push at 40°, another at 50° or 55° or more. The same law regulates the flowering and fruiting as well as the ripening, and the germination of seeds; but all these changes have been almost exclusively referred to the temperature of the atmosphere, the only one on which observations are generally made, and it is here that the error lies, as we shall now endeavor to show.

A plant of whatever kind, a tree for instance, is composed of two systems in close connection, the one above ground the other beneath it. The aerial portion elaborates the juices which are required for the growth of the whole, but the subterranean portion is that which furnishes the materials to do this and which draws them from the soil. Now, to perform this function it is absolutely necessary that the underground portion, or root, be stimulated by a certain degree of heat; and if this degree is not attained, whatever may be the warmth of the surrounding air, the aerial portion can either make no progress, or only do so in proportion to the amount of partially elaborated sap which is contained in its tissues."

In confirmation of the latter statement, M. Naudin instances a vine planted in an outside border, but having its branches trained under glass, and shows that till the soil in which the roots are situated is warmed by the sun, or other means, the vine merely lives upon its own substance; and although the practice is attended with success in such climates as ours, yet in more northern countries, where the soil does not receive the necessary degree of heat, the vine must be planted inside.

"There is wanting, then, for the growth in our climate of plants from warmer countries in the open ground, and without protection, not merely a sufficient atmospheric temperature, but bottom-heat as well; for it is that stimulant which causes the roots to act, and which forces to some extent the aerial parts, the stem, branches, and buds, to vegetate in concert with their roots. But how is this deficiency of heat in the soil to be remedied? The answer is evident. By artificially heating the soil, so long as its natural temperature is insufficient, by means of flues or hot-water pipes.

But the artificial heating of the soil only fulfils one of the conditions above pointed out, and could only take effect whilst vegetation is going on; it still remains to put the stem and branches beyond the reach of frost in winter, for it is very evident that to whatever degree the soil be heated, that would not have the effect of preserving them from frost. They must therefore be protected, but in a temporary way, and so that they may enjoy in summer the advantages of a free access of air, and the direct rays of the sun. Geothermal culture will therefore consist of three essentials, which are: *planting out*, so as the roots may have full freedom as in the open ground at all times, *heating the soil at certain periods*, and *protection in winter.*”

M. Naudin next proceeds to describe what situation should be chosen for the plantation of exotics intended to be cultivated according to his system. As in geothermal culture it is necessary to make the most of the natural climate, it will be readily understood that we should choose the most southern aspect, or that best exposed to the sun's rays and best protected from north, northeast, or northwest winds, according to their predominance and the more or less baneful influence which they may exert in the locality. The southern side of a slope or mountain, where the country is mountainous, high buildings or walls, with a south aspect, if it is level, are circumstances that should be taken advantage of whenever they present themselves. The best condition would be a rather high wall built on purpose, and so as to afford the greatest amount of shelter from the most unfavorable wind; and at the same time it would have the effect of reflecting the sun's rays to the distance of several yards from its base.

“The soil in which the trees are planted should be isolated from the adjoining ground, and heated by flues or hot-water pipes. In the geothermal system we do not absolutely exclude the protection of glass, but we only admit it on condition that the sashes may be removed and replaced at will; but we greatly prefer to glass for protecting plants from cold the common fabrics of wool, hair, cotton, or hemp, which are less expensive, more readily removed, subject to fewer accidents, and in short equally efficacious for the purpose of protection.

A frame-work of wood, simple, light, and strong, a sort of cage which would pull to pieces and be easily put together again, would serve to support the protecting materials; in short it would be merely a tent to secure the plants from cold.

According to the climate and the locality the thickness of the walls of the tent ought to vary. At Paris, and wherever the winter is severe, it would be necessary to employ thick coverings of coarse woollen material. Nevertheless, rush mats would suffice for the sides, and the more pliable materials should be reserved for the top. It would be necessary to cover the whole with a tarpauling reaching to the ground, which, by thickening the covering, would render it more effectual, and at the same time protect it from the effects of moisture. A rope netting, with large meshes interposed between the woollen covering and the tarpauling, would leave spaces filled with air which would add considerably to the protecting effect of the tent.

An objection that would naturally arise is this: these tents, which would of course be completely closed in frosty weather, would have a serious defect, that of keeping the plants in total darkness and causing them to be drawn up. We boldly reply that such would not be the result. In geothermal culture as in all others when properly conducted, the plants should have a season of rest, and this season is the winter. Now, plants do not become drawn up except when, stimulated by heat and moisture, they are making growth in a dark or imperfectly lighted situation. In the geothermal system the plants would be dry in winter, and no more heat would be given than would just be necessary to prevent them from suffering from cold. They would be, in fact, in such a condition that they would not push a leaf nor even a bud, and consequently would not be liable to be drawn up nor to suffer from damp. It should also be recollected that plants which have been six or eight months in the open air, which have become hardened by the direct rays of the sun, and which have not been deluged by syringings, will withstand several days of darkness infinitely better than most stove and greenhouse plants, which only receive the solar light transmitted through glass, and that frequently weakened by shad-

ing. But if a few days of obscurity can have no ill effect on evergreen plants, it would be otherwise if this darkness were to prevail for whole months, and we are far from wishing this to be the case. The tent should be constructed in such a way that it may be easily opened on the sunny side in order to give air and light readily to the interior. At intervals, or even along the whole length of the south side, the protecting materials might roll up, or pull aside like bed curtains. However severe the weather may be in our latitudes, there are occasionally sunny days when light can be thus obtained.

The period at which it would be proper to put on and take off the covering depend on the season and the general climate of the locality. At Paris, protecting for the winter in ordinary seasons may be commenced in the middle of October; at first it should be partial and afterwards completed by degrees as the frost increases. The tents should be made as close as possible during severe frost, and if the temperature of the interior descends to near the freezing point, the soil should be moderately heated, so as to maintain the air of the tent above 32° ."

ON THE HARDY EVERGREENS AND THEIR CULTURE.

BY EVELYN.

THE cultivation of evergreen trees and shrubs is a subject of constantly increasing interest in this country; and it is admitted that no estate is complete in its ornamental department without a good proportion of this description of trees. I am persuaded, therefore, that I cannot perform a better office, than by preparing a series of papers describing the different species and varieties of hardy evergreens, together with the most approved modes of planting and cultivation. I will commence with the family of conifers, because, in a northern climate, they are the most important of evergreens, and afford the most valuable trees for ornament and protection—not to say for shade and for timber.

The Coniferæ are divided into two sections or families, the first including the Abietinæ—or the pines, firs, spruces, and

larches ; the second including the Cupressinæ, or cypress-like conifers. The Abietinæ, or pine and fir family, are among the loftiest trees in existence, and the most important of timber trees, being as generally used for all kinds of house building as the oak for the construction of ships. On account of their habit, when growing in a dense forest, of dispensing with all their lateral branches, they afford the straightest and longest timber that can be found ; and this length, in connection with their lightness in weight, causes them to be selected for masts, many of these trees often extending to nearly a hundred feet in length, without any knots or protuberances.

The Abietinæ are generally classed among the spiry-topped trees, but many of the species are round-headed and flat-topped after they have attained their largest growth. All the species are of a spiry form, however, when they are young. Of the different species, the *Pinus* and the *Cedrus* have the least of the spiry form. Our common Pitch pine is nearly as round-headed, though not so broad as the generality of our deciduous trees, and the White pine shows a tendency to become flat-topped. The *Cedrus* is remarkable for this quality—all the old cedars of Lebanon now to be seen in Great Britain are singularly flat-topped, distinguishing them at once from all other species. The trunk of all the Abietinæ grows remarkably straight, giving out lateral branches with considerable regularity in whorls, often horizontally ; and never, except in consequence of accidental or artificial mutilation, subdividing itself into equal branches.

The roots of all this family of trees are unprovided with a taproot, which they might be supposed to have, considering their immense proportional height. The roots, on the contrary, spread along just under the surface of the soil, like those of the elm, and are remarkable for their projection above the surface. Hence the soil under these trees, especially the larch, will not admit of tillage. The young trees must always be protected from weeds by some sort of a mulching process, unless the plantation is dense enough to provide its own mulching by the fall of its leaves. These superficial roots are of very large size and very tough, and so well capable of sustaining the tree against the action of the wind that it

is no more common to see a pine tree than one of any other species overthrown. One peculiarity of all the conifers is, that their roots, though superficial, never give out suckers; though, as in the case of the Pitch pine and some of the foreign species, the projecting roots are sometimes covered with little abortive branches, containing tufts of foliage.

The pines and firs, notwithstanding their natural tendency to a verticillate arrangement of their branches around a perpendicular central shaft, may be made to subdivide this shaft, by pinching off the leading shoot, year after year, while the tree is young. By this means they may be made to assume a bushy shape, like a horse chestnut, and are deprived of that disagreeable formality which is observable especially in the Spruce and Silver firs. When the trees are cultivated for ornament alone, this practice I should consider very advisable, though it must be performed with great judgment and care, otherwise the tree may be ruined.

In our native pines the leaves fall from the branches in autumn as regularly as from the deciduous trees; the only difference consisting in the formation of the new growth of foliage, previous to the shedding of the last year's crop. In the firs and spruces the leaves are almost perennial. One genus—the *Larix*—is deciduous, and also one genus—the Southern cypress—in the *Cupressinæ*. It may also be remarked, that in the *Abies* and *Picea* the leaves are single, while in the *Larix* and *Pinus* they are in bundles or fascicles of two or three or more; and by their respective numbers the different species are distinguished. In the firs the leaves rarely exceed an inch in length; while in the pines they are considerably longer—the shortest, those of the *Pinus sylvestris*, being about one inch and a half long, while the longest, those of the *P. australis*, or Southern pine, they are from a foot and a half to two feet in length—hence called Broom pine.

The cones, or fruit of the different species, vary exceedingly in their size—the smallest, those of the Hemlock spruce, being only half an inch in length, while those of the *Lambertiana* are sometimes two feet long. The cones, as their name implies, are mostly of a conical shape; but in this respect

they vary, some being considerably elongated, and others, as in the *Araucaria* or Chili pine, being almost spherical. Some species ripen their seeds in the second year of their growth, others in the third year; and these differ also in the time of remaining on the tree from two to ten years or more. The seeds are very palatable and nutritious, and in the wild forests give sustenance to countless multitudes of squirrels and other animals and birds. The average age of this family, when they come to bearing, is twenty years; so that they are somewhat later than the generality of deciduous trees in coming to maturity.

It is my design to speak of the conifers chiefly as ornamental trees, but as timber trees no other species are so worthy of being planted. As a proof of their productiveness and rapidity of growth, it has been stated that "the proportion between the timber produced by the common pines and the common broad-leaved trees of Europe, in a poor, dry soil, in a given time, is as ten to one." Loudon states that "the species which produce the greatest quantity of timber in the shortest time, in the climate of Great Britain, are the Scotch pine and larch; but in favorable situations, both in Germany and Switzerland, these species are exceeded in this respect by the Silver fir; in Spain by the *Pinaster*, and in North America by the Weymouth (White) pine."

The greater number of the *Abietinæ* are natives of cold climates in the north, though a few species are found within the tropics. They occupy immense tracts of country in the north temperate and subarctic zones, often to the almost entire exclusion of every other kind of tree. In Europe there are fourteen kinds; in Europe and Asia five kinds in common; in Asia nineteen kinds; in Africa only two kinds; in Europe and Africa one kind—the *Pinus pinea*; in North America forty kinds, viz., in the United States and Canada eighteen kinds, in Northwest America and California fifteen kinds, in Mexico six kinds, in Hispaniola one kind—*P. occidentalis*; in South America there are two kinds; in Australia one kind; in Polynesia two kinds.

The conifers have been growing in public estimation as ornamental trees for the last twenty-five years, giving rise to

pinetums, or plantations exclusively devoted to the *Abietinæ*. These pinetums in Great Britain have been carried to great perfection—some of the collections numbering upwards of seventy species, without including varieties. The attention of European planters was not drawn to the raising of pine and fir plantations till the great scarcity of pine timber in Europe, and its rapid decrease, called their attention to the necessity growing out of it. As the principal plantations were in the grounds of noblemen, this family of trees became gradually associated with the common appearances of wealth, and this circumstance gave the trees a fashionable name, and caused them to be highly appreciated as ornamental trees. A new impulse was given to the passion for making collections of conifers by the discovery of several remarkable species in California. Great Britain now contains in its collections all the well known *Abietinæ* which are sufficiently hardy to endure the climate. Cultivators in America are emulating the example of Great Britain, and no other trees at present attract so much attention.

With respect to the soil and situation best adapted to the *Abietinæ*, some inference may be drawn from the fact that pine and fir forests are most generally found upon a soil composed of the debris of granite. Hence the prevalence of this family of trees near the summits of high mountains, and over large portions of North America where the different forms of granite distinguish the geological character of the soil. A sandy loam and a cold subsoil seem to be the most favorable conditions for the growth of coniferous trees. Our White pine requires a richer soil than the other American species, and the larch excels all the others in a mean soil. The native habitats of the hemlock are very wet, and often partly submerged in water, yet these conditions are not necessary to it. In fine, there are but few of the conifers that will not do well in almost any soil after they have been successfully transplanted and raised to a growing condition.

The usual method of propagating all the species is by seeds, immense quantities of which are annually collected in different parts of the world by collectors from Great Britain. It is common with us to transplant the White pine from the woods;

but very few other species will bear this process, unless they were raised from the seeds in a plantation. The most certain and economical mode of obtaining a plantation of conifers is to purchase them from the nurseries. The artificial treatment they have received from the first, under the hand of the cultivator, modifies their nature, so that any species, even the hemlock, may always be successfully removed from the nurseries, under the right circumstances of time and season.

In England, it is no unusual thing to propagate certain species by cuttings: but the pines cannot be treated in this way. Cuttings are taken from the lateral branches when the recent shoots are beginning to ripen; they are planted in sand and covered with a glass. This is usually done on the last of August, or a little later; the cuttings are kept in a frame and protected from the frost, and will be found to have struck their roots on the next May or June. They may afterwards be transplanted in the autumn. The Silver fir, the spruce and the larch are found to bear this process well; but the practice is not likely to be followed to any considerable extent in this country. Grafting has also been successfully practiced with several species.

The method of raising by seeds is, however, the most reliable and the most practicable; and in the gathering and planting of seeds a great deal of judgment and experience is required. The cones of some species ripen in one year, in others not until the end of two years. It is advisable to collect the cones a little while before they are perfectly ripe, when they are liable to drop their seeds. In the European trees the seeds usually drop from the cones in March; here the time varies with our latitude and climate, and with the different species. The cones of the hemlock are mature in the autumn, when they begin to shed their seeds, continuing to do so all winter; those of the Pitch pine are mature at the end of the second autumn; those of the White pine require also two years for their maturity, and ripen in the autumn. Hence the proper time to gather the cones of our native species is during the fall of the leaf. In succeeding papers the culture of different kinds will be treated more in detail.

POMOLOGICAL GOSSIP.

NEW STRAWBERRIES.—The Continental cultivators have entered in earnest into the growth of new varieties of strawberries, and several new sorts of great merit have been produced. Since the success attending the culture of *La Constante*, a Belgian seedling, we look with much interest to the introduction of others from the same source, as it is evident they are of an entirely different strain, having the vigorous habit of our American seedlings, and successfully raised under ordinary modes of culture. We describe a few of the new sorts:

EMMA, (De Jonghe.) Fruit large, obtuse conical or round; calyx reflexed; color a beautiful shining bright red; seeds few, deeply embedded; flesh whitish rose, fine, juicy, sugary, and perfumed. Plants hardy, productive, and early.

MARGUERITE, (Lebreton.) Fruit very large, often enormous, frequently weighing 40 grammes or more; of a handsome elongated shape; color bright shining red throughout; seeds slightly embedded; flesh bright orange, abounding with a sugary and refreshing juice. This magnificent variety was obtained by M. Lebreton, a distinguished amateur of Châlons-sur-Marne. It is considered one of unexceptionable merit. It is a variety which fruits early, and continues in bearing a long time. It forces well.

NAPOLEON III. (Gloede.) Fruit large, of a roundish or flattened form, sometimes cockscomb-shaped; color bright rose; seed slightly embedded; flesh white, sugary, and full of a very refreshing juice; plants very hardy and extremely productive. Ripens late.

LA SULTANNE, (Dr. Nicaise.) Magnificent fruit, large, of a conical form, often having the appearance of two fruits in one; color very light red; seeds brown, slightly embedded; flesh white, and full of a sugary and highly perfumed juice. This variety was raised by a distinguished amateur of Châlons-sur-Marne, from seeds of Prince Arthur.

The following are new English varieties of good reputation:—

EMPRESS EUGENIE. A remarkably fine strawberry, brought more particularly into notice by obtaining the first prize for

forced strawberries at the Crystal Palace last year. Fruit of a deep rich red, with red flesh, sweet and good flavored, round oval or coxcomb-shaped, and of the very largest size, often weighing 50 grammes. Plants hardy, extremely productive, and ripens at the medium season. It forces well.

AMBROSIA (Nicholson.) Fruit very large, of a roundish shape; color dark shining red; seeds deeply embedded; flesh pale rose, and full of an extremely sugary juice, with the flavor of the mulberry. Plants very vigorous and productive. Ripens at the middle season and forces well.

FROGMORE LATE PINE, (Ingram.) Fruit of the first size, conical in form, occasionally flattened; color fine deep shining red, with the seeds but slightly embedded; flesh solid but not stringy, juicy, rich and highly flavored, and bears carriage well. Vines vigorous, healthy and hardy, and ripens even later than the old Elton. It was raised by Mr. Ingram, at the Queen's Garden, Frogmore, and the British Queen was one of the parents. It is undoubtedly an excellent very late sort.

INGRAM'S HARDY · PROLIFIC MUSCAT GRAPE.—This is the name given to a new grape, raised by Mr. Ingram of Frogmore Gardens. It was exhibited last year before the London Horticultural Society. It was produced from a seedling black grape, fertilized with the Muscat of Alexandria, and is pronounced the "most prolific and best setting variety of grape, and very hardy in constitution." The seed was sown in January, 1857, and in July, 1858, the seedling plant had nine bunches of grapes upon it. It ripens quite as early as the Black Hamburgh, if not earlier, and in a lower temperature; and for forcing and pot culture, it has no equal. It has all the vinous qualities of the Black Hamburgh, and when fully ripe acquires a delicate, subdued, muscat flavor. The grape, as exhibited, produced a bunch nine inches long, narrow and tapering, very well set, without shoulders. In the shape of the bunches and berries it bears a strong resemblance to Black Prince, but the berries are not so large as in that variety; they are perfectly oval, quite black, covered with thin bloom, with a firmer flesh than Black Hamburgh, very juicy, rich and sprightly, with a slight muscat flavor.

THE BEST GRAPES IN EASTERN PENNSYLVANIA.—At the late meeting of the fruit growers of Eastern Pennsylvania, one of the subjects for discussion was the failure of the grape crop and the best grapes for that section. On the subject of mildew a variety of opinions were expressed, but all concurred that the failure of the crop was a serious matter. The vines are infested with rose bugs, and with another small white insect which destroys them, and the mildew sadly injures what fruit is left. Nothing new was suggested. The Diana, with Mr. Miller, mildewed more last year than others. Isabella and Catawba did not mature last season. At the conclusion of the debate a vote was taken upon the best varieties for Eastern Pennsylvania as follows, their relative merits being placed in the order as they read:—Concord, Delaware, Hartford Prolific, Clinton, Isabella, Catawba.

We are glad to find our opinion so well sustained, for, notwithstanding the excellence of the Delaware, it cannot take the place of the Concord, which, as Mr. Bateham says, is “*emphatically the best farmers’ grape, or the grape for the million.*”

MORELAND APPLE.—A new variety, which originated in Moreland Township, Montgomery Co., Pa. The tree is now thirty years old. It is of medium size, and irregular in form. Its color is golden yellow, with an occasional red cheek: flavor pleasant acid, which fits it admirably for cooking or dessert. Profuse bearer; hangs to the tree with remarkable tenacity. It is in season for cooking purposes early in the fall; keeps well, and is in good order in April. The Farmer and Gardener, from which our notice is taken, gives an outline of the fruit.

GIPSON’S KENTUCKY SEEDLING APPLE.—A new apple from Calhoun, Ky., where it is considered more productive than Prior’s Red or Rawle’s Janet, and keeps better than either of them. The original tree produced twenty or thirty bushels of fruit last season. Size under medium, round ovate, one sided: skin smooth, dark red on the sunny side, with a greenish yellow ground, blotched with dark brown, dotted with small black spots in patches, and speckled with gray specks on the skin; stem about half an inch long, placed in a narrow

cavity, uneven; basin shallow, slightly plaited; calyx partly closed; flesh pale yellow, very fine grained, tender, juicy, sprightly, subacid; keeps all winter; about equal to the best in the country. Our account is from the Gardener's Monthly.

THE WOODWARD GRAPE.—Although there is but little expectation that many of the grapes which are yearly brought into notice will prove worthy of culture, yet it is a duty we owe to pomologists to notice them, and let all who desire give them a trial—for it is only by trial that we can know their merits. If we could at this moment pronounce TWENTY out of the one hundred and fifty sorts enumerated in our catalogues as worthy of cultivation, we should have made cheering progress in grape growing. Those who have the time and space to devote to this object should give the public the benefit of their experience, and report upon the merits of each. Until this is done by intelligent cultivators who know the requisites of a good grape, we can only advise some caution in the indiscriminate selection of every new candidate for public favor.

The Woodward is a new grape, exhibited for the first time at the Newburgh Horticultural Society last fall, by Mr. W. A. Woodward of Mortonville, Orange Co., N. Y. The clusters were beautiful, and said to weigh over a pound each. They were very attractive, and were eagerly examined by all grape growers who were present. The bunches are well formed, compact; berries all of one size; shoulder on one side quite long, similar to the Delaware; the color a coal black; skin very thin; flesh white, with no colored veins and no toughness discernible. Sweet, juicy, aromatic, it somewhat resembles the Concord in flavor, but I think in every respect better. The chief value, however, is its earliness. It was stated that those exhibited were taken from the vine the last of August or first of September. It is known by the name of the mountain on which it was found—"Schoonemunk"—by way of designation, but the writer who describes it in the Country Gentleman proposes to call it the Woodward.

This new variety appears really to possess much merit, for Mr. Caylor, the writer, in speaking of Ohio grapes, thus alludes to the Concord: "It is a good grape, and I think

Messrs. Bull and Hovey *did not receive the thanks* really due them for its introduction." We trust Mr. Woodward will send specimens of the fruit to the Massachusetts Horticultural Society, the coming season, for exhibition.

A NEW MODE OF RAISING PEACHES.

BY JASPER STANDSTILL.

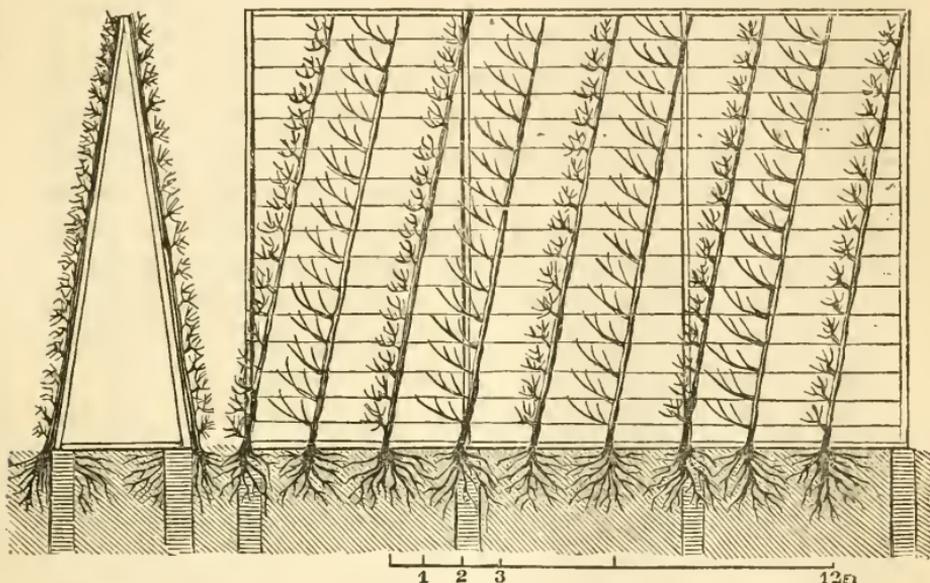
ALL foreigners, readers of your Magazine, must have concluded, from the animated discussion that sprung up between yourself and the Berckmans on one side, and Rivers on the other, in last year's volume, that a full crop of peaches was guaranteed from here to Georgia. The opposite is however the sorry rule for Massachusetts. The last even respectable peaches were in 1858; and where are the peaches for 1861? Why, there is not the vestige of a bud left to tell the tale. Thousands of trees, too, have been swept away in the general ruin, not even those in orchard-houses escaping; and of their utility and efficiency I have my own "sma' peculiar idee" about, and expressed myself so in a cotemporary journal last year, and now repeat, that the Rivers model is totally unsuited to this climate, and, even if so, could not become universal, because of their great first cost, and subsequent expense for skilful culture and attention.

The plan I offer to *insure* a crop of this delicious fruit, doubly important in a sanitary point of view, is cheap in its construction, efficacious in purpose, and ornamental.

The following description will, I trust, be sufficient to render the annexed diagrams (FIGS. 14, 15) intelligible. Take stout cedar or other posts; sink level with the earth's surface in two rows equidistant and opposite; thereon lay a sill or framework 4 feet 2 inches from outside to outside, (the two inches are allowed for a ridge board which is not seen in the cut;) then take rafters 12 feet long, say 2 by 3½ thick, and place thereon at an angle of 85 degrees, which allows a slope of one inch in 12, giving the appearance of the cut (FIG. 14.) Set those six feet apart, and extend to such lengths as space

or desire may dictate. When the rafters are fixed, take galvanized iron wire and run it horizontally six inches apart; strain thoroughly, and fasten to each rafter with small staples. This will be more neat, light and durable than wood.

There may be some diversity of opinion as to the aspect of the trellis; local convenience would always control me. If running north and south, the difference would be the merest trifle. Under a vertical sun, if east and west, the north side may be planted with the late kinds.



14. SECTION.

15. NEW MODE OF CULTIVATING THE PEACH.

To get well ripened wood is of primary importance, and to this end there are two methods of pruning; each has its advocates, and both can be employed to advantage if begun rightly. One system is to remove all wood buds and shoots that do not appear on the upper side of the tree, and to shorten those so that they will form *spurs*: this is the spur system. It requires double the number of trees of the following, which may be termed the long annual branch or semi-fan system, being a modification of the English system of training on walls. This method requires that the trees should be planted

two feet apart, giving the trees the same slope or angle of the rafters, viz., one inch in twelve. This sloping is important, as it tends to equalize the flow of sap, &c. If the trellis runs north and south, let the tree be sloped to the south; and if east and west, to the east. Much or all of the pruning in this method should be done by the thumb and finger, and under no circumstance should any foresight or undershoots be allowed to grow or remain, as they only crowd, confuse, and prevent the thorough ripening of the wood in its proper place, and on this great point hinges your success. By judicious thinning, stopping and tying in, little is left for the knife in spring, and if begun aright, nothing is more easy and simple.

Amongst the many claims this method has on the fruit grower's notice, is the easy and thorough manner the trees can be protected from the ravages of the ice king. To do which, take seaweed, salt hay, or any other strawy covering, and lay on from three to six inches evenly over the entire surface; upon this lay shutters snugly together, rendering it water-tight; the two ends may be fitted with boards, which may be open in all ordinary weather, but when the thermometer is from zero downwards should be closed.

The covering should not be removed too early, as peach buds have sometimes passed the ordeal of our winters unscathed only to be annihilated by late spring frosts.

The shutters are admirably adapted for the protection of early vegetables, breaking cold winds, and hastening on tomatoes, cucumbers, &c.; after which, they should be stacked away for future use, and will thus answer for many years.

The foregoing is, I think, a new idea. It is intended for the million. Trees planted under glass are for the few, and then, without a heating apparatus, is a broken reed, orchard houses a *bubble*, and trees in pots and tubs toys.

We recommend this idea of our correspondent to all lovers of peaches. We believe it is just the thing—cheap and ornamental—for our cold climate.—ED.

ARBORICULTURAL NOTICES.

ADDITIONAL RARE TREES FROM JAPAN.—A late number of the Gardeners' Chronicle contains additional descriptions of several new trees found by Mr. J. G. Veitch in Japan, some of which come from elevated localities and may be hardy, or at least half-hardy. They are as follows:—

PINUS DENSIFLORA. *Siebold and Zucc.* Flora Japonica.

Of this, Siebold gives the following account. It is found all over Japan, but more rarely in the southern provinces, where it is generally cultivated; or in masses, in the middle part of the empire, where it forms vast woods, along with *P. Massoniàna*. Near Nagasaki, he only saw a few solitary specimens forty feet high or more. It is more especially found on the slopes of mountains to the height of 1000 to 2000 feet. It however occurs at the bottoms of valleys; and on the road from Ohosaka to Jeddo are thickets of it, and *P. Massoniàna*, standing above the marshy rice fields: the latter species is, however, more especially a valley plant, becoming a mere bush at the height of 3000 feet above the sea. The timber is of great excellence; its resin is largely in request for the plasters and salves used by the Japanese in healing wounds and sores. In pulmonary complaints they hold it to be a specific. Indian or Chinese ink is made from the soot of both *P. densiflora* and *Massoniàna*. So far Siebold. The cones are smaller than those of a Scotch fir, with flat lozenge-shaped terminations to the scales, and very small seeds, with a narrow curved wing. Mr. Gordon tells his readers that this plant is the same as the Stone pine, an astounding assertion, enough to ruin the credit of any book.

PINUS PARVIFLORA. *Siebold and Zucc.* Flora Japonica.

This is one of the cembra tribe of pines, with leaves five in a sheath, and great wingless seeds. According to Siebold, it, although found cultivated all over Japan, is a native exclusively from 35° N. Lat. to Kurile Islands. It forms a small tree not above 25 feet high in the Japanese promenades, but being taller on the northeastern slope of the Fakone Mountains. The wood is much used by cabinet-makers and turn-

ers. There is a dwarf variety, and the species is inclined to vary in stature and in the length of the leaves. The cones are oblong, with great blunt, thin-edged, concave-winged scales, when fully open.

ABIES FIRMA. *Siebold and Zucc.* Flora Japonica.

Concerning this most beautiful species we collect the following from Siebold. It is a large tree, with the aspect of the European Silver fir, growing from Kiusa to the Kurile Islands. Its timber holds a fifth-rate place among the Japanese, and is principally used in fancy work, or for making the cases in which they pack lacquered goods. It is white, soft, and fine-grained. The cones are about four inches long, pendulous, straight or little curved. The scales are broad, dull downy, a little notched at the edge, and beyond these project somewhat the narrow sharp point of a stiff bracteal scale.

RETINOSPORA OBTUSA. *Siebold and Zucc.* Flora Japonica. (Hinoki of Jap.)

“A Japanese author says that as a hero is the glory of men, so is the Hinoki that of the forest.” So writes Siebold; and certainly the account he gives of the tree would seem to justify the assertion. We have before us a branch of the plant with some cones. In its dried state it looks like a small leaved state of *Thujaopsis dolabrata* without its glaucous underside, and with a more brilliant green color. It is an evergreen conifer, belonging to the *Arborvitæ* race, and Siebold assures us that it has a straight stiff bole from 60 to 80 feet high, and five to six feet through at the butt. Its branches spread like a fan, and its white fine-grained solid wood shines like silk when worked up. Because of these superior qualities the Japanese consecrate the tree to the goddess of the sun, whose chapels and little temples are built entirely of its timber. Moreover most of the wooden utensils employed at the court of Micado are formed from it, and retain their natural color without the aid of varnish. The fans of the prince and his women are also made of little slips of Hinoki wood held together by silken threads, and gleaming with the colors of the rainbow. The country of Hinoki is chiefly the mountainous part of Nippon, where it forms vast forests, and, on account of the high price of its timber, is an

important article of trade. Huge piles of colossal balks and planks may be seen collected on the banks of Japanese rivers. The tree is planted for ornament and shade all over the empire.

RETINISPORA PISIFERA. *Siebold and Zucc.* Flora Japon. (Sawara, Jap.)

A smaller and more slender tree than the last, with sharp pointed leaves, glaucous and concave on the under side. According to Siebold, the leaves are also of a darker green; he saw individuals 25 to 30 feet high near a temple at Nagasaki; and found it growing intermixed with *R. obtusa*. Its cones are much smaller, and the oil-cysts on its seeds more numerous as well as larger.

VEITCHIA JAPONICA. *Lindley.*

Of this extraordinary plant only two mutilated cones, a few seeds, and a small branch have been received; but they suffice to show that it is a wholly new form in the coniferous order, with the seeds of a *Chamæcyparis*, the leaves of an *Abies*, and cones which become when ripe more like spherical honeycombs than anything else to which we can compare them. One would fancy the plant to represent an *Abies* permanently assuming in the cone the monstrous form so often given the common spruce by the attack of insects, and then struggling onwards to become a *Sciadopitys* or a *Cryptomeria*. The branches are short and covered with spirally-arranged, projecting, curved pulvines, resembling those of *Abies Menzièsii*. At the base of each branchlet is a small cup formed of recurved scales, from which the branchlet emerged when young. The leaves are half an inch long, linear, blunt, and glaucous beneath. The cones are erect, downy, nearly spherical, about an inch in diameter before ripening, furnished with incurved, horn-like, projecting, bracteal scales, which at maturity break and disclose as many four-sided sockets or cavities, within which lodge a (to us uncertain) number of small two-winged seeds, terminated by a pair of short, straight, tooth-like processes. We cannot do otherwise than associate with this extraordinary genus the name of Mr. J. G. Veitch, its active and intelligent discoverer, and the introducer of so many fine trees previously unknown in this country.

THE PALM AND THE PINE FORMS.

BY WILSON FLAGG.

THERE are two forms of tree vegetation by which the equatorial and the northern regions are respectively marked. These are the Palms in the former, and the Pines and their congeners in the latter. Each family includes some of the loftiest trees on the face of the globe, and the pines, likewise, some of the largest in dimensions. The palms are never of great magnitude, being distinguished by their lofty and slender shape. "To these above all other trees (says Humboldt) the prize of beauty has always been awarded by every nation: and it was from the Asiatic Palm-world(??), or the adjacent countries, (most probably the latter), that human civilization sent forth the first rays of its early dawn. Marked with rings, and not unfrequently armed with thorns, the tall and slender shaft of this graceful tree rears on high its crown of shining, fan-like, or pinnated leaves, which are often curled like some of the grasses." Some smooth stems of the palm, which he measured, rose to a height of 190 feet. This form diminishes in beauty and magnitude as it recedes from the equator towards the temperate zones.

"Not many of our inhabitants," to quote my own words in *The Atlantic Monthly* of September, "have seen these trees in their living beauty; but all have become so familiar with them, as they are represented in paintings and engravings, that they can easily appreciate their effect in the sunny landscapes of the south. There they may be seen bending over fields tapestried with passion-flowers, and verdurous with myrtles and orange trees, and presenting their long shafts to the tendrils of the Trumpet Honeysuckle and the palmate foliage of the Climbing Fern. But the slender palms, when solitary, afford but little shade. It is when they are standing in groups, their lofty tops meeting and forming a uniform umbrage; that they afford any important protection from the heat of the sun.

"In pictures of tropical scenery we see these trees standing on the banks of a stream, or in the vicinity of the sea, near

some rude hut constructed of bamboo, and thatched with the broad leaves of the Fan-palm. In some warm countries, nature affords the inhabitants an almost gratuitous subsistence from the fruit of the different palms,—a plantation of dates and cocoa-nuts supplying the principal wants of the owner and his family during the life of the trees. But the palm is not suggestive of the arts, for the South is not the region of the highest civilization. Man's intelligence is greatest in those countries in which he is obliged to struggle with difficulties sufficient to require the constant exercise of the mind and body to overcome them. Science and art have built their altars in the region of the oak, and in valleys which are annually whitened with snow, where labor invigorates the frame, and where man's contention with the difficulties presented by the elements sharpens his ingenuity and strengthens all his faculties. Hence, while the oak is the symbol of hospitality and of the arts to which it has given its aid, the palm symbolizes the voluptuousness of a tropical clime and the indolence of its inhabitants."

According to Dr. Hooker, the surface in the Himalaya Mountains "resolves itself into five belts:—1. Palm and plantain; 2. Oak and laurel; 3. Pine; 4. Rhododendron and grass; 5. Rock and snow." This represents a general idea of the distribution of vegetation in the different climates or zones. We see, therefore, the palms and the pines generally occupying the opposite extremes of climate. "The true palm climate has a mean annual temperature of 78° to 81° Fah., but the Date palm, which has been brought to Europe from Africa, and is less beautiful than other species of this family, vegetates in the south of Europe, in districts whose mean temperature is only from 59° to 62° Fah. Stems of palms and skeletons of elephants are found buried in the interior of the earth in northern Europe. Their position renders it probable that they were not drifted from the tropics towards the north, but that, in the great revolutions of our planet, climates and the physiognomy of nature, which is regulated by climate, have been in many respects altered."

In all the palms, the floral buds spring out from the stem directly under the leaves, which are found only on the ex-

treme summit of the tree. It is by the different modes of inflorescence the several species are distinguished. In some, the sheaths are erect; in others, they incline downwards;— in some, they are smooth; in others, rough and prickly. Some species have blossoms of a snowy whiteness, conspicuous from great distances; in others they are of a dull yellow, compressed and inelegant. There are various other modes of inflorescence, which cannot be easily enumerated.

South America is of all portions of the tropical world the most remarkable for the beauty of its palms. They are rare in Asia and in South Africa. In Egypt they form a distinguishing feature of the landscape, where the traveller is struck by the contrast of their lofty forms bending over the low roofed houses. The palm is found amidst all the ruined grandeur of the plains about Alexandria, following the course of the waters. Dr. Gardner, speaking of the scenery of Rio Janeiro, remarks:—"As far up the bay as the eye can reach, lovely little verdant and palm-clad islands are to be seen rising out of its dark bosom." The combination of heat and moisture being greater in South America than in any other tropical clime, is the cause of the luxuriance and beauty of its palm woods. A few species of palm are of a social habit, as the Mauritian palm and the *Chamærops*, but the greater number are solitary, and seldom constitute forests of great density or extent.

The Pine, or acicular-leaved family, is opposed to that of the palm, not only by occupying an entirely different climate, but also by its social habit, which, in the pine family, is very remarkable. It has also a much wider geographical diffusion; for though it is evidently of high northern origin, it extends its species, in numerous cases, almost to the equator. But its constitution is not adapted to an equatorial clime. It is Humboldt's opinion that "if the surface of the earth did not rise to great altitudes within the tropics, the strikingly characteristic form of acicular-leaved trees would be wholly unknown to the inhabitants of that zone." He remarks further, that the heights at which, in common with oaks, the pines begin to rise, are hailed with joy by those who come from the sea-coast, because they announce a climate not yet invaded, as

far as experience has hitherto shown, by that mortal disease called the black vomit, a form of yellow fever.

Probably the largest and tallest trees in the world belong to the family of Coniferæ. In this part of North America, we find no trees that exceed the pines and firs in height. But, as the reader well knows, we must proceed to California to find the largest specimens of this form. There are to be seen fir trees from 250 to 320 feet in height, and of a magnitude almost in the same proportion. The largest trees of this family are a sort of deciduous cypress, which has been named *Taxodium*. But it is needless to enlarge upon the character of these trees, which have within a few years past been so fully described in all our newspapers.

There are no true pines south of the equator. The trees in the southern hemisphere that are allied to this family resemble pines in general appearance, but, on examination, it will be found that the fruit, which is borne at the extremity of the branches, instead of being a cone is globular, and often of great size. Such are the Chili pines, whole forests of which cover the western side of the Andes. These trees, bearing fruit as large as a man's head, are the *Araucaria imbricata*. They rise from 70 to 100 feet in height, and form a perfect quadrangular pyramid. When the fruit is ripe it cracks open, and shells out from two to three hundred seeds, larger than almonds, and of an excellent flavor.

In Lapland, it is not the pines but the birches that form the upper limit of tree vegetation. The same is true of that part of North America that occupies the frigid zone. Next to the birch, certain species of fir appear in great numbers. After this comes the true pine, which, in Norway and Sweden, reaches as far as 70° north latitude. The vegetation of mountains does not exactly resemble that of the plains in its climatic course. In the Pyrenees and in the Swiss Alps the pine forms the highest limit of tree vegetation, at a mean height of 5883 feet; and in Japan, as has been recently stated by Mr. J. G. Veitch, in extracts from his Journal of a tour in that country, the conifers stud the highest mountains.

THE CULTIVATION OF NATIVE FLOWERS.

BY MRS. ISAAC CLEMENT, MECHANICVILLE, N. Y.

IN a former communication I promised notes on the special cultivation of the various species of native flowers that I have cultivated at different times. I have but few of them now, only such as will grow on dry ground. The place where I formerly lived had a damp, shady spot, where I grew even the plants that were under water in winter with success. Before this will be published the time will have passed for some kinds, although it is but a few days since our last snow left us. I fancy some new devotees of Flora have started for the woods, basket in hand, with a determination not to let any flower bloom unnoticed within a reasonable distance of home. In this locality the blossoms they will meet with first will be those of the *Hepatica*.

1. *HEPATIC A TRILOBA*, Liverwort. The variety found here is the one found on the east and south sides of hills; flower nearly an inch in diameter, almost every shade of color, from pure white to dark blue. I have never been able to keep the same plants long, perhaps from setting them among other flowers; they found the wrong kind of stimulants, which in their wild state is wholly decayed leaves. The soil I have found them in is rather hard and stony, indicating that they would not bear high culture. It is said that they become double in cultivation; leaves evergreen, root fibrous. April and May.

2. *CLAYTONIA VIRGINICA*, Spring Beauty. I have found this in the greatest perfection near the south and west edge of wet woods, in places fully exposed to the sun, in a deep black soil, and quite wet at the time of flowering, but entirely dry for weeks in summer. I think plants from such localities suffer from the freezing of their roots, which, in their native soil, are entirely under water in winter, protecting them from frost. I have saved them a long time by covering their roots with pine boughs, put on plentifully before the frost enters the ground, and removed early in the spring. A label should be kept by the plant, so that its exact situation may be known

when you wish to cover it. Root, nearly a round corm, very deep in the ground. April and May.

3. *CLAYTONIA CAROLINIANA*, Spring Beauty. I have found this in the same soil and nearly the same situations as the last, except that it grows in dense shade; root the same as the last; needs the same protection in winter; flowers in a terminal cluster, nearly white. April and May.

4. *SANGUINARIA CANADENSIS*, Bloodroot. Native of wet ground in open situations, as I have seen it bloom for years on the line of a fence, fully exposed to the sun, where the roots had been in the ground before the wood was cleared from the land; it will thrive in any soil. Flower white, an inch in diameter, on a stem six or eight inches high, appearing before the leaves, which are the prettiest of all leaves; root a creeping rhizome, which is its only fault. April and May.

5. *ERYTHRONIUM AMERICANUM*. A very pretty small lily, found in rich open ground that has not been disturbed by the plough, or near the edge of woods; leaves spotted; flower stems four or five inches high, on the top of each of which is a solitary nodding flower. I have never cultivated this, as the root is a most inveterate creeper, being a continuous string of bulbs, and soon would appropriate all the ground within reach to its own use. I should think it could be easily cultivated. May and June. It would be well if one had a spot, (a small island for instance,) where they could plant such creepers, and let them have their own way.

6. *ARUM TRIPHYLLUM*, Jack-in-the-Pulpit, or Wild Turnip. Found here in wet woods, but will grow in any soil or situation. I have an old root that has had no special care, which has blossomed every year for ten years past. A curious flower, which has to be seen to be appreciated, striped green, and purple inside, with one part of the flower turned down over the other; stem one foot high; fruit a bunch of red berries; root a flattened corm. May and June.

7. *TRILLIUM*, Wake-robin. I know of but one species here, *T. erectum*, found in wet woods, where the roots are protected from frost by water, and consequently must be grown in the shade, in a deep black soil, and the roots protected in winter;

flower purple, on a stem eight or ten inches high, with three large leaves near the flower; root a flat solid corm, not very deep in the ground. May and June.

CALADIUMS AS BORDER PLANTS.

THE Caladiums are among the most picturesque and beautiful of ornamental-foliaged plants; conspicuous for the singular marking of their large leaves, which are of various shades of green covered with crimson bands, or with curious blotches of crimson or white resembling hieroglyphics in their disposition over the surface. Some of the newer kinds, not yet introduced, are very remarkable for both the size and coloring of their foliage, and when more common will greatly enrich our already brilliant variety of species.

Heretofore it has been supposed they could only be grown in the hothouse, requiring as they do, when in full vigor, considerable warmth. But it has been found by the Parisian cultivators, who have tried the experiment, that they may be planted out in groups on the lawn, or in the border, and display all their luxuriance of habit and diversity of foliage nearly as well as in the hothouse. Our summer heat is quite ample to grow them in perfection, and if they are kept quite dry in winter—as they should be—they may be managed with the same ease as any of our summer-flowering bulbous roots.

This will be interesting information to amateur lovers of plants, for they can possess in all their beauty what it was thought impossible to have only by the aid of the greenhouse. It is true, they are great ornaments in this place throughout the summer, and should always be introduced; but their value is enhanced from the ease with which they are cultivated in the open ground.

An English gardener, visiting Paris, states that they are employed there extensively for large groups around the lawn, or in conspicuous places throughout the garden. For this purpose the bulbs should be potted immediately in a light rich soil, composed of leaf mould, heath soil and sand. Place the pots in a warm house or hotbed, where they will push

vigorously in a few days. Water carefully at first, increasing the quantity as the plants advance in size, and keep in a half shady situation. Shift into larger pots if they require it, say about eight inches in diameter, and treat as before. As soon as the weather is fine, they may be removed to the open air, selecting a good position; keep shaded for a day or two, when they should be plunged out in the ground, or turned out into the soil, if rich, light and good. But the pots are preferred as they can be immediately taken into the house on the occurrence of frost in autumn, and retained as ornaments there till the foliage begins to decay. The soil should be composed of leaf mould, heath soil, fibrous loam and white sand in nearly equal parts. In dry weather they should be freely watered and syringed.

Grown in this way, and arranged in beds with Callas and Cannas, no plants can form a more agreeable group, the large size and diversity of foliage forming a rich contrast with surrounding vegetation. For this purpose the *C. pictum*, *bicolor* and *atropurpureum* are admirable sorts.

FLORICULTURAL NOTICES.

NEW ROSES.—Quite a number of unusually fine roses have been brought out this year, some of which are very distinct in color. The number as usual is large, for the French produce an almost endless quantity every year, and from the descriptions and drawings of such as we have seen, there are more really fine ones than is generally the case. The rose growers are increasing in number, while the character of a new variety is narrowed down to nicer points than heretofore. A rose of the same color of any previous variety must have some other extra qualities to entitle it to a name.

Among the new sorts of 1861, are some very dark hybrid perpetuals, darker than any yet obtained, or rather of a purplish shade. One of the best in this way is the *REINE DES VIOLETTES*, raised by M. Mille Mallet of Amiens, and exhibited at the Imperial Society of Horticulture of Paris, when it

was greatly admired, and was awarded a silver medal. The flowers are very large, four and a half inches in diameter, very double, deep violet, with a whitish centre.

Another superb rose is the *MADAME FURTADO*, raised by M. Verdier; although having the aspect of the Tea rose, it is, in reality, a hybrid perpetual. It first flowered in 1857, and, at the exhibition of the Central Imperial Horticultural Society in 1860, was crowned with the first prize, a gold medal, as the best seedling rose. It is a vigorous grower, and the flowers are four and a half inches in diameter, of the most exquisite tint of carmine rose, very full, with beautifully arranged petals, and altogether a magnificent acquisition.

COMTESSE CECILE DE CHARBRILLANT is a third variety, a hybrid perpetual of great merit, with a good habit, and delicate rose-colored flowers, exquisitely cupped like *Coupé d'Hebe*.

There are so many superb roses of last year that it is difficult to know which are the best—but, as these have been figured and described in European floral works, we may safely consider them as decided acquisitions.

GENERAL WASHINGTON ROSE.—This is the name given to a new, superb and distinct hybrid rose, raised by our correspondent, Prof. C. G. Page of Washington, D. C., who produced the *Cinderella* and *America*. The *General Washington* is a true Tea, of the highest order, and combines all the excellences of the best roses of this class. It is perfectly and generally of the color of its female parent, the old Tea *Mansais*, though variable from this and livelier, with pink shades among the outer petals, and cream color towards the centre. Its great charm, however, is in the bud when half expanded. In this state, which is retained for two days or more, it presents a perfect bell form, which is very distinct and uncommon in roses. When open it is entirely full and very large, and has never thus far shown a green centre, which is so apt to occur in the first class Tea roses. It is a very free bloomer, a vigorous grower, has a hardy habit, and the foliage is clear and handsome, being well fringed with the dark mahogany color, always indicative of healthful exuberance in the rose.

570. BEGO'NIA DÆDA'LEA *Nob.* LABYRINTH BEGONIA. (*Begoniaceæ.*) Mexico.

A hothouse plant; growing eighteen inches high; with beautifully marked leaves; increased by cuttings; grown in light rich leafy soil. Illustration *Horticole*, 1861, pl. 269.

A new and very remarkable species, which has been described as "the pearl, the bijou, of all the Begonias, past, present, or, we are truly bold enough to say, the future." The size of the plate scarcely does justice to the plant, but the execution of it will convey an idea of its remarkable character, especially the curious and charming diversity of the markings of its foliage; markings which are reticulate and zigzag, of beautiful brown purple, strongly impressed upon the fine porcelain green of the upper surface, and also upon the under side, but paler and less neat: markings which, in fine, imitate perfectly but infinitely small a labyrinth, and by a just comparison the famous labyrinth of the Isle of Crete."

The young leaves are reddish, and the petioles, which are more than a foot long, are more brilliantly colored than the leaves, in consequence of the rich and bright colored down which covers the entire surface. The flowers are rosy white, and disposed in panicles on brightly colored striated peduncles. It was introduced from Mexico by M. Griesbright, and is cultivated like the other species. (*Ill. Hort.*, Jan.)

571. SE'DUM FABA'RIMUM *Hort.* BEAN-LEAVED SEDUM. (*Crasulaceæ.*)

A half hardy or hardy plant; growing a foot high: with rosy lilac flowers; appearing in the autumn; increased by division of the root; grown in light soil. Illustration *Horticole*, 1861, pl. 271.

A new and handsome species or hybrid of the Sedum, resembling somewhat in its flowers the *S. Sieboldii*, but paler in color. It has a beautiful habit and ample foliage, of a pale glaucescent shining green, marked in the centre with a large whitish channelled nerve. The flowers are large for a Sedum, of a pale rose, rendered brighter by the stamens and styles, upon which the bright brown anthers have their dehiscence forming very ample starry cymes, which have an effect highly ornamental. Its origin is not known. It was first raised in London, from seeds, and plants exhibited in 1858. It is supposed to be as hardy as *S. Sieboldii*, but this remains to be proved. If so, it will be a fine acquisition. (*Ill. Hort.*, Jan.)

572. CHRYSANTHEMUMS. EARLY DWARF VARIETIES. 1. CHROMATELLA; 2. AURORA; 3. ILLUSTRATION; 4. MAD. AMBROSE VERSCHAFFELT; 5. M. DOMAGE; 6. MAD. THIBAUT. Illustration Horticole, 1861, pl. 272.

Six new and very handsome varieties of the new dwarf early flowering Chrysanthemums, which have been raised by M. Pelé of Paris, and are valuable for planting out in the open border, where they usually bloom early in September, before severe frosts. The first of this class were rather ordinary flowers, but the present varieties show a great improvement, being nearly as well formed as the best pompons, to which class these belong. Eventually, no doubt, they will be raised in very great perfection.

The six now named are quite distinct. No. 1 is orange, each petal edged with yellow; 2 is of brownish crimson; 3, deep crimson, very fine; 4, rose, shaded with white; 5, pale yellow, and 6, delicate blush. (*Ill. Hort.*, Jan.)

573. BEGONIA IMPERIALIS *Nob.* IMPERIAL BEGONIA. (*Begoniacæ.*) Mexico.

A greenhouse plant; growing one foot high; with white flowers; appearing in summer; increased by cuttings; grown in turfy peat, leaf mould and sand. Illustration Horticole, 1861, pl. 274.

This species is the type of several varieties, one of which, *B. imperialis* var. *Smargdina*, we have already noticed, (p. 81.) A comparison of the two with the accurate scientific description shows the parentage of the former, notwithstanding the very great difference in the colors of the parentage, a contrast very ornamental, which contributes to the charm which attaches to a collection of Begonias. The leaves of the *imperialis* are of a dark reddish brown, and all the nerves are accompanied with a distinct undulated border of emerald green, which contrasts conspicuously with the dark surface, the whole being covered with a pubescence, which, under the bright sun, give the appearance of spangled velvet. It is a very rich and beautiful species, and a great addition to this elegant class of plants. It was found by M. Griesbright, in Mexico, and introduced to Belgium in 1859. (*Ill. Hort.* Feb.)

574. PASSIFLORA BARRAQUINIANA *Nob.* BARRAQUIN'S PASSION FLOWER. (*Passifloreæ.*) Brazil.

A greenhouse plant; growing six feet high; with white and violet flowers; appearing in autumn; increased by cuttings; grown in light rich soil. Illustration Horticole, 1861, pl. 276.

A small but very neat and pretty species of the Passion flower, found near the borders of the Amazon River, by M. Barraquin. The habit is rather slender, and the leaves are attenuated and acuminate, heart-shaped at the base, and deeply serrated; the whole plant is covered with a soft pubescence. The petals are white, and the base of the rays of a pale violet. The flowers exhale a sweet and agreeable perfume. It blossoms quite young. (*Ill. Hort.*, March.)

575. AZALEA DIEUDONNE' SPAE. Garden hybrid. Illustration Horticole, 1861, pl. 278.

The Continental florists are great lovers of the Azalea and Rhododendron, both tender and hardy, and annually raise thousands of seedlings, many of which are yearly introduced. Too frequently these are not equal to the old and well known sorts, but occasionally one appears of great merit. The present subject seems to be one of this character, having very large flowers, in general appearance like variegata, but deeper colored in the centre, darkly spotted, and distinctly bordered with white. The flowers are of the largest size, produced in abundance, and its habit is vigorous. It is a sport, from formosa, secured by grafting. (*Ill. Hort.*, March.)

576. AZALEA ETOILE DE GAND AND CARNATION. Garden hybrids. Florist, 1860, pl. 166.

Two very beautiful varieties, the former of Continental origin, and the latter one of Messrs. Ivery's seedlings, who have been very successful in the production of new kinds. Etoile de Gand has white flowers, shaded in the centre of each petal with deep red resembling a star. It is of good form and substance, and altogether a fine variety.

Carnation is white, distinctly splashed and striped with crimson and pale rose, and spotted on the upper petals. The flower is round and well shaped; both have the habit of variegata, with small delicate foliage, and succeed best by grafting on strong stocks.

BEAUTY OF AMERICA is the name we have given to a new seedling which flowered last year. It is by far the best of all the striped kinds, the flowers being white, distinctly

splashed with *scarlet*—clear bright scarlet—in this respect a great improvement on Beauty of Europe, as well as in the form of the flower, which is round and symmetrical. It is a good grower and free bloomer.

General Notices.

EVERLASTING FLOWERS.—The January number of the “Technologist” contains an article by Mr. T. D. Rock concerning everlasting flowers, from which the following is an extract:—

“It is surprising that, amidst this universal taste for flowers, and the enormous traffic in the artificial, so little attention has been hitherto bestowed upon those flowers commonly known as ‘everlasting,’ and which are so well adapted for purposes of decoration.

“The general idea seems to be that everlasting flowers are confined to that small yellow variety (*Gnaphalium arenarium*) known as ‘Immortelles,’ and occasionally dyed blue and red for the sake of contrast. But, as we shall presently prove, the choice of these flowers is confined within no such narrow limits.

“Everlasting flowers are chiefly, if not entirely, produced by plants belonging to the natural order *Asteraceæ*, but although approximating in form, they vary considerably as to size, and in color there is almost an unlimited choice, as the following enumeration of a few of them will illustrate:

NAME.	LOCALITY.	COLOR OF FLOWER.	TIME OF BLOOM.
1. <i>Acroclinium roseum</i> ,	S. W. Australia,	Rosy,	August, Sept.
2. <i>Ammobium alatum</i> ,	New Holland,	White,	August, Sept.
3. <i>Gnaphalium foetidum</i> ,	Cape of Good Hope,	Light yellow,	June—Sept.
4. <i>Helichrysum bracteatum</i> ,	New Holland,	Yellow and white,	July—Sept.
5. “ <i>roseum</i> ,	do.	Rose colored,	June—August.
6. “ <i>aurantiacum</i> ,	do.	Orange,	July—Sept.
7. “ <i>brunneo-rubrum</i> ,	do.	Brownish red,	August, Sept.
8. “ <i>coccineum</i> ,	do.	Scarlet,	June—August.
9. “ <i>flavum</i> ,	do.	Yellow,	July, August
10. “ <i>purpureum</i> ,	do.	Purple,	June—August.
11. “ <i>macranthum</i> ,	Swan River,	Large flowered,	July—Sept.
12. “ <i>speciosissimum</i> ,	Cape of Good Hope,	Most showy,	July—Sept.
13. <i>Morna elegans</i> ,	Swan River,	Yellow,	June—Sept.
14. <i>Stæhelina dubia</i> ,	South Europe,	Pink,	June, July.

“The property possessed by these flowers of resisting decay, may be attributed to the presence of large quantities of silica in the juices of the plants; and this appears the more certain from the fact that at whatever stage of their development the flowers are gathered, they are still ‘everlasting,’ and resist all change after the little sap that remains in the stem attached is exhausted. Although these plants are many of them natives of warm climates, yet they are easily cultivated in this country, and most of them will thrive in the open air and flower profusely.

“A quiet trade in these imperishable flowers already exists. On the

continent as well as in this country, wreaths are made of the small yellow variety (*Gnaphalium arenarium*) and are sold in large quantities for adorning the graves and monuments of the departed. The railings which surround the column of Napoleon, in the Place Vendome, at Paris, are literally covered with these wreaths, producing a singular effect. In Germany, baskets and bouquets of everlasting flowers and wreaths are sold in the bazaars for decorative purposes; and within the last few weeks, a quantity of these elegant posies, &c., have been imported in this country, and readily realized from 1s. to 7s. 6d. each, according to size and quality, whilst they certainly surpass, both in form and color, anything ever produced of an artificial kind. Mixed with the everlasting flowers in these German nosegays appear several of the beautiful grasses recently in high favor with horticulturists, as well as a sprinkling of flowers not naturally everlasting, but which our ingenious friends profess to have preserved by a peculiar process.

“Wreaths of a yellow variety of everlasting flowers, about the size of a farthing and strung together transversely, are worn by the natives of the Sandwich Islands as a kind of head ornament.

“It only remains for us to suggest the extensive cultivation of all the varieties of everlasting flowers in this country, for the formation of winter decorations and the artistic grouping of them with grasses, &c., would furnish another branch of employment to our large surplus of female population, who ought to be encouraged and educated in the manufacture of many little elegancies, for which we are now entirely dependent upon the foreigner.”

The above interesting article induced me to inspect a large stock of everlasting flowers, sent from Germany, and I was truly astonished at the great variety of beautiful bouquets shown me, and their clever artistical arrangement. I found in these bouquets, besides most of the before-mentioned flowers of the Asteraceous order, also the following species:—*Amaranth*, *Xeranthemum*, *Sea-lavender*, *Larkspur*, *Rose*, *Gypsophila* and several species of grasses.

The arranging of these flowers appeared to me to be a rather tedious process, each single flower being fastened to a separate wire; but as that part of the work could, under proper guidance, be very well carried on by children and young females, I suggested to the gentleman to whom they had been sent that he should endeavor to procure more information concerning the system of drying the flowers, and also obtain the assistance of some lady competent to superintend the preparing and arranging them; asking him at the same time, whether, in the event of any philanthropic institution taking the matter up, he would lend his assistance as an honorary director, to which he readily assented, at least so far as his other occupations would permit. I likewise pointed out the necessity of making arrangements in time with gardeners to sow the different plants, in order to ensure a plentiful stock of suitable flowers at the time they would be required.

I need only add that I have not the slightest personal interest in the matter, my only motive in addressing to you this communication being to draw the attention of some already existing philanthropic institution to what I

believe may form a most suitable subject for the employment of a great number of young women and children.—(*Gard. Chron.*)

BOTTOM HEAT FOR VINES.—This is a subject which seems to be attracting considerable attention at the present time, if one may judge from the pages of the horticultural press, though not more than it deserves. The wonder is that it should have been so long neglected, or, at least, but so imperfectly provided for, and that only when early forcing was contemplated, by the placing of fermenting material on the surface of the border, the heat from which could scarcely be expected to penetrate more than a few inches from the top; its benefit therefore chiefly consists in its preventing radiation of heat communicated by the autumn sun, but this would be equally effectually done by a few inches in depth of dry leaves, with a slight thatching of fern or straw, to keep them from being blown away, as by any given depth of fermenting material. As far as known to me, the merit of first applying bottom heat to vines grown in common borders, by means of hotwater pipes, is due to Mr. Shearer, gardener to the Marquis of Tweeddale, at Yester, who published drawings making his system perfectly intelligible, a copy of which I received from him some eight years ago; but it may be objected to his system that as the border was all constructed on arches, and the pipes in chambers underneath, it was necessarily very expensive, and that this would always be a drawback to its general adoption. Such, however, is no argument against the great importance of providing some such temperature for the roots as is supplied to the branches of the vine; and this leads me to describe two methods I have applied here for this purpose.

The first case is that of a vinery 35 feet long and 13 feet wide. In the year 1855 the vines in this house broke very weakly in April, and showed but little fruit in May; and on the 8th of June, when in full foliage, I shaded the house with a tarpaulin, poured a great quantity of water into a pit in the house, and took up the roots of the vines, which were all in an outside border, and placed them in fresh soil. The leaves all flagged, but I kept the house warm and moist. The thick shading obviated the necessity for giving any air. At the end of a week the leaves began to turn heads instead of "heels up." I withdrew the tarpaulin, and substituted a thinner shading, and at the end of three weeks they were making lots of fine young rootlets from the old roots. They set what bunches were on them, and swelled them off in perfection.

In 1856, the vines were started in February, and produced over 200 lbs. of grapes that were ripe in July; in 1857, they were started in January, and were ripe in June. They were then started in October of the same year, and the first dish of grapes was cut from them on the 15th of April, 1858. They were again started as usual in October of this season, but the spring being very cold and backward in 1859, I was not able to cut grapes from them till the 11th of May, and this determined me to apply heat by some means to their roots. The house is one of a range of three vineries, all intended for early forcing, and in which were pits for pines. The roots

all being in an outside border, to effect my object I removed the pine pits, and laid a double row of 4-inch pipes along the bottom of the space previously occupied by the pine-pits, and four feet below the general surface level the whole length of the three houses. To these pipes, 200 feet in length, I attached a small boiler, which required to be placed below the level of the boiler that gives surface heat in the houses. Over the pipes I placed about nine inches of old brickbats, laid as loosely as possible. Over the bricks I placed a layer of turf, with the grassy side downwards, and on this three feet of soil in the case of two of the vineries, the vines in which were planted in 1855, pulling from the outside border any roots that could conveniently be got hold of, and laying them in the new soil inside the house. I may here remark that the front of the houses is on arches, and that the stems of the vines were inside, although their roots were all outside at the date now referred to; the wall of the pine pit being close to the arches. I also made an incision with the knife in the stem of each vine, about two inches under the point I brought the new soil up to, and from the upper side of this incision, which extended about one third the circumference of the stem, I found by Midsummer that a complete tuft of fine roots had started into the new soil. In the two houses I am now referring to, I can maintain in the inside border a temperature ranging from 60° to 80°, by keeping a slow fire at the boiler for two days in the fortnight.

But to return to the house referred to in the beginning of these remarks, I was anxious to have the benefit of bottom heat at once; to effect this, instead of filling up the border with soil, as in the case of the others, I filled it with leaves and stable dung to act as a lining for the outside border, and started the house on the same day of the month of October 1859 as in 1858; but mark the difference: I was able in 1860 to cut grapes which were exhibited at the Edinburgh show on the 18th of March, a clear gain in time of two months, and at half the cost of fuel, for, independent of the shorter time a fire had to be applied, the fermenting material made less fire heat at any given time necessary. I remarked that this year not a single air root was emitted from the stems, while previous to the application of the bottom heat they were in thousands. Mark this.

In July last I pruned the vines in the usual way, and on examining what I may term "the old lining," I found that a great many roots from the stems had run into it in all directions, and instead of removing it, as it had subsided very much, I added largely of a mixture of dung and leaves to its surface on the 16th of August, and shut up the house; in three weeks the vines burst into leaf, and showed 120 bunches, all of which were left on them, and on the 1st of this month I cut the first dish from them for my employer's table, and in order that you may judge of their quality I send you a bunch of them, with foliage attached. I also send you a bunch of Lady Downe's seedling, and one of Muscat, which shows that where proper means are allowed, grapes may be had the whole year round.—(*Gard. Chron.*)

ARTIFICIAL COMPOST FOR AMERICAN PLANTS.—Peat soil for growing American plants is not always procurable in quantities for out-door cultiva-

tion. When the natural soil is unfavorable and peat is scarce I have made an artificial compost, which serves either to grow American plants by itself, or to mix with the natural loams, as I find about one-half compost mixed with one-half loam to grow many kinds of hardy rhododendrons luxuriantly. This compost is also suitable for numerous other plants, and where there is any extent of woods or trees of any kind may be cheaply manufactured; and as this is the season for procuring the materials, I beg to send it you for insertion in the *Florist*:—Let the tree leaves which are collected at this season be taken to a convenient spot, where they may remain for a couple of years; as my best oak leaves are usually retained for the pits, &c., those I employ for the present purpose are merely the waste leaves and rubbish swept up after the best are removed, and also the leaves of the chestnut, elm, &c., which are unfit for forcing purposes. As these leaves are formed into a stack I throw over them clean sand, in the proportion of two good barrow-loads of sand to a cartload of leaves, and two barrow-loads of the droppings from cattle picked up from pasture fields, and of course without straw. If sand is scarce, road-scrappings are a good substitute when the stone employed in repairing the roads is not limestone, for lime in any form American plants greatly dislike. To the above may be added the trimmings from hedges, old tan, saw-dust, long grass, moss, or any other kind of vegetable refuse of not too succulent a nature. I generally make the heaps sufficiently large to heat slightly, and where there is time they are turned over once or twice the first year and the same the second, by which time the materials are entirely decomposed and fit for use. I first tried the compost without the droppings, but I find it much superior when these are added. When using it I generally add more sand for hardy heaths and kalmias; but rhododendrons and azaleas grow with the greatest vigor in it alone, or when mixed with a portion of loam for the hardier species, but the surface should be mulched to prevent its drying too rapidly until the plants cover it by their branches. For gladiolus, lilioms, alstrœmerias, and fuchsias, planted in the open air, it is the best compost I ever saw, their growth in it being something extraordinary. If care is taken of what is usually cast away to a useless purpose there are few places which may not have their American plants in perfection.—(*The Florist.*)

FERNS AND THEIR ADAPTATION.—Although much has been said in praise of this beautiful tribe of plants, I think their real merit is not yet fully appreciated, inasmuch as their peculiar adaptation for filling rockwork borders in greenhouses or stovés, or the beautiful effect they produce in a house specially set apart for them, is not sufficiently known. I am aware that ferns have a place awarded them amongst other ornamental and flowering plants. But I think they deserve more extended cultivation after the manner in which they are naturally found, viz., amongst rocks, &c. They may be grown successfully in this way, and with beautiful effect. We constantly meet with mixed conservatories, camellia and heath houses; might not a fernery, therefore, worthily occupy some place in an establishment? There is now such an endless number of varieties of ferns intro-

duced from temperate as well as from tropical latitudes that at a reasonable cost a well contrasted variety might be obtained suited to almost any degree of temperature. It is to be observed, however, that although the kinds grown be almost hardy, to secure a perennial verdure frost must be excluded from the house. I will now enumerate some varieties which have escaped uninjured, and are, in fact, looking none the worse for having withstood a temperature which ranged from as low as from 35° to 40° on many nights during the late severe weather. The list includes only small and medium growing sorts, as the room they occupy is somewhat limited:—

Adiantum, many varieties,	Nothochlæna chrysophylla,
Asplenium, “ “	“ distans,
Blechnum gracile,	“ nivea,
“ triangulare,	“ vestita,
Cheilanthes spectabilis,	Olfersia cervina,
“ elegans,	Onychium auratum,
“ hirta,	“ japonicum,
“ lendigera,	Platynerium alaicorne,
“ pulveracea,	“ grande,
“ odora,	Platyloma calomelanos,
Davillia aculeata,	“ flexuosum,
“ Boryana,	“ rotundifolium,
“ bullata,	“ ternifolium,
“ canariensis,	Polypodium plumulum,
Doodia caudata,	Polystichum capense,
Doryopteris collina,	Pteris argyrea,
“ palmata,	“ aspericaulis,
“ sagittæfolia,	“ tricolor,
Gleichenia dicarpa,	“ hastata,
Hemionitis cordata,	“ longifolia,
Lastrea decomposita,	“ semipinnata,
Litobrokia leptophylla,	“ serrulata,
Neottopteris vulgaris,	“ tremula,
Nephrodium molle,	Sagenia decurrens.
Niphobolus lingua,	

The Gymnogrammas, a very desirable class of ferns, are mostly rather tender, and cannot endure a temperature below 50° without injury. *G. gracile* has however done well in the warmest corner of our house. *Goniophlebium subauriculatum*, a very desirable fern for baskets, is also somewhat tender. Of other ferns well deserving a place under glass are the beautiful British kinds *Asplenium marinum* and *fontanum*, *Adiantum Capillusveneris*, and a few others. Amongst the many fine-foliaged plants which add to effect in the fernery no one exceeds in beauty *Dracæna terminalis*; but it requires plenty of warmth. I have said nothing about mosses, but they cannot be dispensed with in a fernery. All the lycopods are also objects of beauty. They may either be mixed with ferns, or they may occupy a part of the house by themselves. Many of the dwarf trailing

sorts are unequalled as edgings for rockeries or small borders. Subjoined are the names of a few which are about as hardy as the preceding ferns:—

Selaginella apoda,	Selaginella lepidophylla,
“ formosa,	“ paradoxa,
“ denticulata,	“ Schotti,
“ Galeotti,	“ stolonifera,
“ helvetica,	“ Wildenovi.

In a future number I may give a description of a small fern-house.—
(*Gard. Chron.*)

ORANGE AND LEMON TREES IN ORCHARD HOUSES.—I have now, however, (February, 1860,) the great satisfaction of stating that orange and lemon trees and camellias may be grown in pots in any common orchard house without fire heat, by the very simple method—and how simple are all good gardening practices—of taking advantage of earth-heat (terrestrial radiation,) which is done by laying the pots on their sides on the earth-borders of the house in November or December, but not till the approach of severe frost, and covering pots and trees first with mats treble in thickness, and then with a coating, say one foot thick, of dry refuse hay, leaves or straw, giving the plants some water before they are laid down. If the weather should be mild in the winter months, as it often is, the covering, which is easily removed, may be taken off and replaced as soon as frost approaches, and suffered to remain on even if the frost lasts some weeks. About the first week in March, if the weather be mild, the camellias may be placed upright and have water, as their flower buds will be swelling, they will then bloom all through April; some of their flower buds may perhaps drop off, but not to any extent, for the plants will be in a better condition than they often are after being wintered in a greenhouse exposed to heat, necessary to keep out frost, and consequently to a dry atmosphere.

Towards the end of the month of March, or earlier if the season be mild, the orange and lemon trees may be placed upright and have water, which should be given sparingly the first fortnight. They will then blossom and bear their fruit in the house all the summer and autumn. If any sudden severe frost should occur in March or early in April, all the trees must be promptly laid down and covered with mats till it has passed. The radiation of heat from the earth is so constant and powerful, that when thus intercepted by a thick dry covering, no fear of injury even from the most severe frost need be apprehended. I write with confidence on this subject, having for many years kept tender evergreens in pots from frost, by merely laying them down on the soil in the open air and covering them with mats. The application of the system to orange trees in orchard houses is, however, an idea only a few days old, and was brought to my mind by the following incident:—

On the 19th of December, 1860, the frost became severe, and some young lemon trees for stocks which it was thought would not be wanted and therefore not housed, yet too valuable to be thrown away, were covered

with mats two or three thick, and then with a coating of straw. On the 21st there was a considerable fall of snow; they were forgotten and not uncovered till the middle of February. On taking off the mats and straw the leaves of the greater part were found to be discolored, but their stems and roots all alive and fresh, although they had been in moisture and darkness for two months and lying on a cold clayey soil fully exposed to the northeast. Reasoning from this I feel no doubt but that lemons and oranges may be grown in pots, not only in orchard houses where they will be cultivated by thousands, but also trained to walls with southern aspects, the pots being plunged and taken up annually early in November, then laid on the surface in a shallow trench at the foot of the wall, and parallel to it, and covered with mats and straw in frosty weather, uncovering them during the winter in continuous mild weather. About the first week in May, unless the season be unusually late and cold, the trees may be raised and trained to the wall, the pots being plunged, as in the preceding season, following the same practice annually. I have used the small "Petersburgh mats" for covering, as they are more closely woven than the large mats, but some other material will doubtless be found, such as thick painted canvass, or perhaps some thick and cheap woolen fabric, so as to retain and thus take full advantage of earth-heat, hitherto so little thought of although well known to exist.—(*Gard. Chron.*)

JAPANESE GARDENS.—Japanese gentlemen in Nagasaki, whose wealth enables them to follow out their favorite pursuits more extensively, have another class of gardens. These, although small according to our ideas, are still considerably larger than those of the working classes; many of them are about a quarter of an acre in extent. They are generally turfed over, and like the smaller ones they are laid out with an undulating surface, some parts being formed into little mounds, while others are converted into lakes. In several of these places I met with azaleas of extraordinary size, much larger than I have ever seen in China, or in any other part of the world, the London exhibitions not excepted. One I measured was no less than 40 feet in circumference! These plants are kept neatly nipped and clipped into a fine round form, perfectly flat upon the top, and look like dining-room tables. *Farfugium grande*, and many other variegated plants still undescribed, were met with in these gardens, in addition to those I have named as being favorites with the lower orders.—(*Gard. Chron.*)

IMPATIENS JERDONIÆ.—A few words relating to the culture of this may perhaps not be uninteresting. If good blooming plants are required by the middle of October cuttings should be put in without delay in the following manner: first prepare some thumb or 60-sized pots, filling them half full of small clean crocks; over these put a layer of rough leaf-mould, and then finish with clean sand. The cuttings should then be laid in a horizontal position upon the sand, placing the bases up close to the side of the pot; then press the cuttings into the sand, leaving a small portion of the upper part uncovered. Roots will be emitted all along the stem, which will give

vigor to the lateral shoots that will soon rise from the latent buds. Water with a fine rosed pot to settle the sand about the cuttings, and then place the pots in a propagating pit or frame where a temperature of from 60° to 70° is kept up. In six weeks time the pots will be well filled with roots, and the plants may then be transferred to 4-inch pots, using the following compost: one part old turf, one part peat, two parts flaky leaf-mould, and one-third of the whole broken charcoal and lime rubbish that has passed through an half-inch sieve. Pot firmly, and place the plants in a pit or frame where a temperature of 60° by night and 70° by day is maintained, keep the atmosphere moist by frequent syringings with rain water, and let the plants have abundance of air, as they will not grow satisfactorily if kept in a close over warm atmosphere; never allow them to flag from the effects of sun or excess of heat, or growth will for the time be suspended and consequently a considerable amount of progress will be lost. About the beginning of July the plants will require another shift, when they may be put in 5-inch pots, adding a very little rotten cow-dung to the compost. Let them be watered with great care during the whole of the period of growth, as few plants suffer sooner from excess of moisture than this does. Flower stems should be picked out with a sharp pointed knife as soon as visible, until the beginning of September, when, if the plants are required to be in blossom by the middle of October, the practice must be discontinued. If these directions are carried out, instead of having diminutive miserable plants as we frequently see them, you will have specimens with from three to ten shoots upon them, in the best of health; and when in full flower will be one mass of floral beauty, measuring from eighteen to twenty-two inches in diameter. I ought to state that the drainage for each shift should never occupy less room than one-third of the pot.—(*Gard. Chron.*)

FRUIT TREES IN SHRUBBERIES.—I should like to see the apple and pear in more general use as ornamental plants, and want to know why they are not more frequently planted in places of moderate, or even limited extent, as suburban and villa residences, by intermixing them with common shrubby plants. For cottage ornées they are peculiarly adapted, and in the former places might be planted to a considerable extent, and would add greatly to the beauty of residences at this season of the year; and afford in the autumn some compensation, by way of set off, by contributing a supply of fruit in places where there is generally a want of it. The great beauty of the bloom of some varieties of apples and pears would of themselves entitle them to a place in our grounds, solely as ornamental plants; and I wish you could persuade nurserymen to make a selection for this purpose, as I imagine many country gentlemen would be induced to purchase them for their parks and homesteads for this property alone, if good-sized plants could be procured; and that proprietors of small places would be glad to introduce them. I say nothing of the Chinese apples and pears, which are just now in bloom, and worthy of all the admiration they call forth; but having noticed for several seasons how really beautiful the bloom is of many varieties of apples, I venture to suggest the matter to your readers.

As for the pear, it is, when old, one of the most picturesque trees to be met with, and for parks and home grounds invaluable as an ornamental tree, when in bloom. I strongly advise planters to try the Beurré Rance pear, and three or four other new varieties; these have fine foliage and flowers and a strong habit of growth, which, as they grow old, would prove useful ornaments to landscape scenery.—(*Florist.*)

WATERING POT PLANTS.—In the operation of watering potted plants persons not practically familiar with plant culture are apt to make serious mistakes. Cultivators find by experience that an excess of water at the roots is very injurious to almost all plants, and hence it is usual to direct that great caution be used in the application of water, especially in the winter. The result is, that frequently the opposite extreme is fallen into, to the great injury of the plants. From the moment that the soil becomes so far dried that the fibres of the roots cannot absorb moisture from it the plant begins to suffer. Some plants can bear this loss of water with more impunity than others; some again, and the erica family among the rest, are in this way destroyed. The object in watering should be to prevent this stage of dryness being reached, at least during the time the plant is growing, and at all times in the case of those of very rigid structure; at the same time that excess which would sodden the soil and gorge the plants is also avoided. Within these limits the most inexperienced persons may follow sound directions for the application of water with safety, but whatever water is given to pot plants enough should be employed to wet the soil thoroughly, and the difference between plants that require more or less water should be made by watering more or less frequently, and not by giving greater or lesser quantities at one time.—(*Florist.*)

Gossip of the Month.

LA CONSTANTE STRAWBERRY.—I have just noticed, at page 113 of your March number, a remark by M. J. de Jonghe of Brussels on this strawberry. He says: “Mr. Prince, in his catalogue sent me, has described it as a new French variety ‘valuable for amateurs.’” M. de Jonghe reads our catalogue badly. Under the head of “Large English, French, and *Flemish* Strawberries,” I state: “These are large and beautiful fancy varieties, and then insert it among others with the following description:—

“La Constante—perfect in all respects, large, regular cone, brilliant scarlet, very firm, sweet, perfumed, late.”

Surely this is praise enough. It may, however, be just to observe, that, although the heading applies to all the other foreign varieties yet tested in our clime, La Constante promises to be an exception as to its productiveness, the result most probably of a distinct parentage. One fact must, however, be constantly kept in view. All the large-fruited varieties originated

and cultivated in Europe are hermaphrodite, and are the descendants of two South American species. Ingram's Princess Royal, which is pistillate, is not an exception, as it is one of the varieties of our *Fragaria virginica*, carried over to England and there renamed with a title. I consider M. de Jonghe entitled to the highest encomiums for the great zeal and talent displayed in his pomological labors.—W. M. R. PRINCE, *Flushing, April 2, 1861.*

TREATMENT OF CHINESE AZALEAS.—Will you be kind enough, through the medium of your Magazine, to answer one or two questions in regard to the treatment of Chinese Azaleas. 1st. I see you recommend pruning in order to make fine specimens; how, and at what season, should it be done? As they lose their lower leaves and each year form a tuft at the top, and apparently no eyes below, I am at a loss to know how that pruning could be accomplished without injury to the plant. Is it merely pinching out the top, or do you cut *into* the wood of the previous year's growth? 2d. At what time should they be repotted, and what soil is best adapted to them? What "amateurs" so much need in regard to the culture of flowers are plain and practical directions. This, with *many other features*, has made your Magazine indispensable to me, and I hope it may still continue to have the patronage it so well deserves. By replying to the above, you will very much oblige, yours respectfully, MRS. R. C.

[We cheerfully comply with the request of our correspondent, though we believe our article upon the culture of the Azalea, in a previous volume, covers the above questions.

1st. The pruning should be done now, at once, or as soon as they have done flowering, if not yet in bloom. This pruning, if the plants are very straggling, as they sometimes are, should be hard; that is, the shoots should be cut back into the OLD wood, so as to bring them into some symmetrical form. No fear need be entertained about their breaking again vigorously. On the contrary, they usually push so many young shoots that a portion of them may be rubbed off. Of course, after the plants are so pruned they should be kept in a slightly increased temperature and syringed daily, by which care they will break sooner and stronger. This pruning once done, all afterwards should be performed by pinching out the ends of the young shoots, which will cause them to break again, and form a compact surface of young branches, every one of which, if rightly managed, will form flower buds.

2d. There is no other time to pot Azaleas than when they require it. If badly pot bound, they should be repotted immediately after the young shoots have begun to grow; but if not, after they have set their buds in July or August, remembering always that the Azalea does not like to be over-potted, by which plants are often injured, especially the delicate growing sorts. If repotted, the pot should be but a trifle larger, and the outer surface of the ball, if hard, should be well broken, otherwise the plant is likely to suffer: the earth should be in just the right state, neither wet nor dry, and, if the latter, it should be well soaked in water and allowed to dry off a few hours. Pot firmly.

The soil best adapted to the Azalea is leaf mould, turfy peat and sand, rather coarse, not sifted on any account, with a thorough drainage of broken pots, coarse at the bottom and finer above.—Ed.

CATALOGUES, &c., RECEIVED.—Descriptive Catalogue of the Columbus Nursery, Batcham, Hanniford & Co., proprietors, 1861. A good catalogue.

Lenk, Hanson & Co's General Catalogue of Fruit and Ornamental Trees, Shrubs, Roses, Greenhouse Plants, &c. &c., for sale at the Humboldt Nurseries, Toledo, Ohio, 1861. Very neatly got up.

Catalogue of Azaleas, Camellias, Roses, and other Greenhouse Plants; Hardy Trees, Shrubs, Evergreens, Ornamental Trees, &c.; with a choice selection of small Fruits. Cultivated at the Helendale Nurseries and Seed Farm, Kingsessing, Philadelphia; John Dick, proprietor.

Bridgman's Catalogue, No. 5, of Greenhouse, Hothouse and Hardy Herbaceous Plants. Andrew Bridgman, principal. New York.

Catalogue for 1861, of Fruit and Ornamental Trees, Flowering Shrubs, &c., cultivated and for sale by Wm. Reid, at his Nurseries, Elizabethtown, N. J. As usual, full of good things.

Descriptive Catalogue of Greenhouse, Stove, Orchideæ and other Plants, Hardy and Foreign Grape Vines, Roses, Trees, Shrubs, &c., cultivated and for sale by John Cadness, at the Flushing Exotic Gardens, Flushing, L. I., N. Y. Very extensive for our old correspondent in his new establishment.

Pleasant Valley River Company, Hammondsport, N. Y. A Synopsis of Vine Culture for Wine, with brief descriptions of several Grapes.

SUMNER'S TREE LABELS.—These are a new and very desirable kind of tree labels. We are using them ourselves, and find them to be exceedingly convenient.

Massachusetts Horticultural Society.

Saturday, April 6th.—The stated quarterly meeting of the Society was held to-day—the President in the chair.

The Committee appointed to procure a suitable quantity of crockery ware for the use of the Society, were discharged from the further consideration of the subject.

It was voted that the sum of \$1000 be appropriated for the Committee who had been authorized to procure life size portraits of the Presidents of the Society. An appropriation was also voted for the payment of the Chairmen of the Fruit, Flower and Vegetable Committees.

A letter was read from F. L. Capen in regard to meteorological matters, which was laid upon the table.

New regulations for the Library were adopted.

E. S. Rand, Jr., from the Publication Committee, made an elaborate re-

port, signed by four members, upon the propriety of publishing a monthly Journal of the Society, at an expense of \$5000, with probable receipts to cover that sum. Mr. Cabot moved that it be referred to the Executive Committee, and after some discussion it was referred to the Joint Committees (the Executive and Publication) to report in July.

F. L. Capen was elected a member.

C. M. Hovey announced the death of Mr. Edward Beck, of London, a corresponding member of the Society. Mr. Hovey paid a feeling tribute to his memory, and, at the close of his remarks, presented the following resolutions, which were unanimously adopted:—

Resolved, that we deem it no less our duty than it is our heartfelt wish to place upon record a recognition of the valuable services of one who has done so much to promote the true interests of horticultural science—to elevate the popular taste—and to lead the way in the production of new varieties of some of the most beautiful plants

Resolved, that in his deep devotion to floricultural art—his earnest endeavors to advance its great interests—his disinterested and zealous efforts in advocating its pursuit—and his active labors in ameliorating and elevating the position of the gardener, alike claim our admiration and deserve our gratitude. An energy of character and a kindness of heart were conspicuous among his many traits, and deep convictions of religious duty were ever the guide of his life.

Resolved, that the Corresponding Secretary be and is hereby instructed to tender to the family of the deceased the deep sympathy and condolence of the members on the occurrence of an event so afflicting to them.

Adjourned four weeks to May 4.

Horticultural Operations

FOR MAY.

FRUIT DEPARTMENT.

THE early part of April was cool, with a very severe snow storm on the 1st, to the depth of ten inches, unusual at so late a season. This snow did not wholly disappear until the middle of the month. Since then the weather has been cool, with occasional showers, and east winds nearly the entire period. Vegetation is now backward. The month has been favorable for gardening operations. The ground has not been dry, and, except in heavy soils, in just the right condition for planting. Continued cool weather for ten days will give full the usual season of spring work.

GRAPE VINES in the greenhouse and grapery, except those started early, will be now in full bloom, or just setting their fruit. Still maintain a slightly increased temperature, airing more freely as the berries swell up. Keep up a genial atmosphere by damping the house often. Stop all laterals that require it. Towards the last of the month thinning should be commenced,

being careful to do this judiciously, and not cut away the berries so as to leave a loose straggling bunch. Vines in cold houses will now be breaking, and will require more attention; air freely, closing early in the afternoon to maintain a genial temperature: syringe the vines freely in fine weather. Fork over the border, and occasionally stir the surface.

TREES should be transplanted now.

GRAFTING should now be pushed forward. Look over stocks budded last fall.

STRAWBERRY BEDS may be made this month. It is the most favorable season, where the ground can be got ready. Weed, clean and put in order old beds. Be careful not to disturb the soil too deeply.

FRUIT TREES for pot culture should be potted this month, selecting small, compact, dwarf specimens. Place them in a half shady situation till they begin to grow. Head in the shoots to form handsome specimens.

TREES IN POTS, now swelling their fruit, should have occasional waterings with liquid manure to invigorate the exhausted soil.

INSECTS will be troublesome; fumigate, or syringe with whale oil soap for the green fly, and sulphur for the red spider.

FLOWER DEPARTMENT.

The cool weather of April has necessitated the use of cold frames and pits for many plants which are usually removed to the open air. Where these have not been at hand, the houses have remained rather too crowded for the more valuable plants. As the weather is now pretty safe to risk everything of the kind out of doors, the sooner they are removed the better, being careful to shade for a few days till the tender foliage can withstand the full sun.

AZALEAS will now become prominent objects of attention, for no collection can be complete without a fair stock of handsome specimens. Plants that have now done flowering should be repotted at once and placed in a warm house, where they can be freely syringed till the young shoots appear. Prune into shape if they require it, being very careful to nip off the end of all shoots which show a tendency to take the lead. Plants now coming into bloom, if kept in a cool house and shaded, will retain their beauty a long time.

PELARGONIUMS will now be in their greatest beauty. Shade the plants a few hours in the hottest part of the day, and water more liberally as they advance to full flower. Give each plant plenty of room, and occasionally water with liquid manure. Young stock may be shifted to make stronger plants. Give an abundance of air, and fumigate if the green fly appears.

CINERARIAS, now in their prime, should be removed to a frame, or kept in a cool house with an abundance of air. They are truly magnificent plants at this season, after the azaleas have mostly gone.

CAMELLIAS should be syringed freely every fine day. Water occasionally with weak liquid manure.

FUCHSIAS may have a shift into their flowering pots. Keep in a warm, airy house.

CHRYSANTHEMUMS should be propagated from cuttings.

TUBEROSES may yet be started in a good hotbed.

JAPAN LILIES should be repotted.

EPACRIS AND HEATHS, done flowering, should now be cut back, keeping them in a close part of the house till well broken. Those already growing should have all vigorous shoots stopped.

MONTHLY CARNATIONS may now be turned out into the border, where they will flower freely all the autumn.

BEDDING PLANTS of all kinds should be removed to cold frames and hardened off.

ACACIAS, and similar tall growing plants, should now be pruned in so as to get a good strong early growth.

BEGONIAS should have attention, shifting such as require it.

CYCLAMENS should be planted out in light rich soil, in a half shady bed.

VARIEGATED PLANTS should be attended to, and repotted if they require it.

CALADIUMS should be repotted.

CHINESE PRIMROSES should be removed to a cool frame, where they can be shaded from the hot sun. Sow seeds now.

STOVE AND GREENHOUSE CLIMBERS should be headed in, that a good strong growth of well ripened wood may be secured.

FLOWER GARDEN AND SHRUBBERY.

The lawn scarcely yet begins to look its "summer hue," but still it needs attention. Now is the time, while the ground is moist, to roll freely to secure an even and hard surface, without which it cannot be mown well: roll often, and cut as soon as the growth is sufficient. Clean, rake and roll the walks: rake and clean the ground among the shrubs, and dig and put in order the flower borders. Keep beds of lilies and bulbs free of weeds. Prune the small wood out of Tree pæonies. Sow hardy annuals, and transplant and fill spaces, or make new plantations in the flower garden.

ROSES should be pruned at once, if not already done. Manure HEAVILY and dig around them.

TULIP BEDS should be shaded from the hot sun.

GLADIOLUS may be planted any time this month.

DAHLIAS, for very early blooming, may be planted the last of the month.

FLOWER SEEDS of all kinds should be sown now.

HERBACEOUS PLANTS should be removed, divided and reset.

HOLLYHOCKS should be planted.

CARNATIONS, PICOTEES, &c., should be planted out in well prepared beds. Plant one foot apart each way.

PLANTS in frames should be well aired, and liberally watered in favorable weather.

PANSIES may now be removed from frames to the border.

NEAPOLITAN VIOLETS, for early blooming next fall, should be divided and reset.

TRITOMAS and similar plants may be removed to the border.

ACCLIMATION OF PLANTS.

THE severity of the past winter in Great Britain has been attended with the most destructive effects upon plants and trees. Never, during the present century, has there been such wide-spread devastation. The winter of 1837 was very severe, but yet in no comparison with that of 1860. The thermometer reached the unparalleled low point of 13° below zero in many parts of England, and as low as 4° below around London. The papers are full of plant obituaries. In every direction there has been disaster—some localities light, and in others severe—but universally so great that the experience gained is likely to materially modify or change the culture of many popular plants. Thus one writer says that “he expects the Russian winter will effect one or two reforms in rose growing by what he hears and sees.” Nearly all the standard and worked roses are dead, while those growing on their own bottoms are breaking strongly from the root. Standard roses, he says, “are now being generally condemned, and the veteran king of rose growers feels that their days are numbered.” This is just the experience of our American cultivators. Tree roses are a sham in our climate. If there were any evidence wanted to prove this, it would be to ask the purchasers of the hundreds of thousands of imported *auction* tree roses to produce fifty living specimens. Yet the trade goes on, and thousands of dollars are yearly thrown away in buying these useless things.

Another writer, in giving an obituary notice of coniferous trees, enumerates nearly all that have not proved quite hardy with us, leaving the English cultivators but a few more than we possess ourselves. That such winters will not occur often may be pretty true; but to have the labors of twenty years entirely swept away is quite too much to run the risk, and will teach a lesson which will not be forgotten. The experience of the winter has settled one disputed question, and that is, that it is the low temperature and not sudden changes

which destroys many evergreens. Nature has not given them the power to resist intense cold; and though sudden changes from cold to warm and warm to cold are very destructive, there are certain trees that cannot withstand one excessive freezing. It is the hardiest trees which suffer most by great changes. Natives of high, dry and cold regions, where the temperature is very even, when cooped up in small gardens exposed to the changes natural to sheltered places, actually become tender, just as a hardy plant, coddled in the greenhouse, feels the effects of a removal to the open air. The experience of such a winter and close observation will teach many important lessons in regard to the production and growth of many valuable trees.

Our winter has been severely cold. The peach and cherry buds are wholly destroyed; not a cherry flower has been seen, and the only peach buds we have seen, to use an Irishism, were on a tree of the Cambridge nectarine, a seedling of ours. The Bartlett, Beurré Clairgeau, and many other pear buds are quite dead, and some few apples injured, yet the evergreen or coniferous trees of all kinds *never wintered better*; all look green and handsome, showing conclusively that to strictly hardy trees intense cold has had no injurious effect. Still, in warmer winters, we have seen the same kinds of trees badly cut up. All these facts tend to show that we have much to learn regarding the growth and hardiness of many kinds of trees and plants before we can successfully cultivate them.

The subject of acclimation has been much discussed, and various suggestions have been made as to the processes for adapting somewhat tender trees to a colder clime; yet little that is really valuable has been the result. That a plant naturally tender can be rendered hardy by any peculiarities of culture, is not probable if not impossible. Exposure, locality, soil, and other circumstances may prevent excessive injury, but they will not render it hardy. Reproduction from seed is the only mode of obtaining any considerable results, and with some plants there is but little chance of success. With others, however, nearly or quite hardy, there is fortunately more hope, and the effort is worthy of trial. On sum-

ming up the lessons which the LATE FORMIDABLE winter have taught us, says Dr. Lindley, "is that even in their power of resisting cold, individuals of the same species of plant are remarkably different. That they vary greatly in other respects is notorious, but the fact of hardiness being also an invaluable quality is scarcely thought of. And yet it is this which, in skilful hands, is perhaps the most valuable of all the attributes that a bountiful Providence has bestowed on the vegetable kingdom. It is that which permits us to cultivate in a northern latitude, without artificial aid, species that naturally prefer a southern climate. It is to this property, indeed, that the advocates of what is called ACCLIMATION must look in their speculations about adapting one plant to the climate of another. If it is not that on which they rely, their aims will all miss; for there is not the smallest particle of evidence to show that where plants are propagated by mere subdivision, whether natural, as in the case with bulbs, or artificial, as with cuttings, buds, eyes, grafts, or layers, their constitution becomes in any degree affected."

Dr. Lindley then proceeds to show how this peculiarity in plants has been shown by the effects of the winter. A quantity of seedling Araucarias were growing in the nursery of Mr. R. Glendinning, at Turnham Green. They were all of the same age, all planted in the same border under the shelter of a wall facing the south, and in the same soil. There was no reason to believe that they were protected more in one place than in another; and yet in the midst of the dying, numerous individuals remained on which the frost absolutely made no impression. We do not know enough of the habits of the Araucaria, when wild, to say precisely under what varying circumstances the tree is found; but this much is certain, that it occurs at very different elevations above the sea, and extends over at least 10° of south latitude. We believe the seeds, which have found their way to England, are chiefly if not wholly from the forest of Autuco, the warmest locality in which the tree is known to thrive. "The Araucaria forest of Autuco," says Poppig, in the Companion to the Botanical Magazine, "is the most northerly that is known in Chili; so that the boundary of this king of all the extra trop-

ical Araucarian trees may be estimated at 30° south latitude. The extreme southern limit is not so clearly ascertained, which is not surprising, when we consider how little comparatively is known of Western Patagonia; it seems probable, however, that it does not stretch far beyond lat. 46°. Between Autuco and Valdivia, this tree only grows among the Andes, and, as the Indians assert, solely on their western declivities, and nowhere lower than from 1500 to 2000 feet below the snow line, up to which it frequently reaches. Further to the south, the Araucaria appears at a lower elevation, and in the country of the Cuncos, and about Osorne, is said to occur on mountains of very moderate altitude, near the sea. The Coreovado, a mountain that rises opposite Chiloe, is said to be studded, from its foot to the snow line, with large groups of these beautiful trees. Of all other vegetation, the Araucarian forests are as bare as the pine wood, offering but few plants which can interest the botanist. Steep rocky ridges, where there is no water, are its favorite habitat." This shows, adds Dr. Lindley, that the Araucaria is exposed to cold, but grows on precipices *where water cannot lodge*.

From some of the localities the Indians bring the seeds to the markets of Chili; and although they probably come from the forest of Autuco, yet they were doubtless collected at different degrees of elevation above the sea, and therefore possess different degrees of hardiness. But with us they are all mingled, and no means of separating them. It is only when the seedlings have been exposed to a severe trial that it is possible to say which are hardy and which are more tender. A winter like the last tests them, and it will be a great benefit to the buyer to be able to secure hereafter, with certainty, the more hardy individuals, although he may have to pay them the usual price. In future it would be an object of much importance to procure seeds from the most southern limits of the tree, which we imagine might be effected by a skilful traveller who could have a stop in Chiloe; or otherwise through Indians get into communication with Western Patagonia. It is true that proof now exists of the ordinary seedlings possessing great diversities of constitution; yet a crop received from forests towards lat. 46° S. would probably be not only wholly hardy, but more so than what we have."

This reminds us that nearly twenty years ago, a captain of a sailing vessel, who had visited Chili, presented us with a bottle of the seeds of *Araucaria*, which, then unknown to what it is now, he praised as a remarkable tree, which he stated would grow in our climate, as the seeds were gathered on trees where the snow was two feet deep in winter! Unfortunately the vitality of the seeds was destroyed by damp, and none of them vegetated. We mention this to show that the *Araucaria* grows in a very cold locality, and if seeds could be procured from trees so situated, they might prove nearly or quite hardy.

“What has been said of the *Araucaria*,” continues the writer, “may be equally applied to all species that will ripen seeds in Europe, or whose wild stations quit the hotter for colder latitudes. We know that there is an olive tree far more hardy than the common olive; that even apple trees are unlike each other in the power to bear cold; that ridge cucumbers will survive a frost that reduces other sorts to pulp; that peach trees in like manner differ a good deal among each other; that in the lemon and orange race some are more tender than others, one, the *Skimmia japonica*, being as hardy as a gooseberry; and that kail of a Scotch homestead is descended from the same stock as the tender cauliflower, the delicate constitution of which it refuses to acknowledge. All these differences have been produced either by artificial or natural selection, and we think it a most encouraging fact that such a plant as the *Araucaria* already shows unmistakable evidence of the execution of a universal law of the utmost importance to the gardening world.”

This is precisely the view we took in discussing the hardiness of American pears in our last volume, (XXVI., p. 385,) and the present winter has verified it to the letter. The Bartlett was instanced by a contemporary as a pear which, though a foreign one, had proved hardy everywhere. Is it so? The winter of 1860-61 tells another tale. The flower buds have been universally injured, and in many instances entirely killed. Even the young wood has been destroyed. Not a single American seedling that we have yet noticed, though there may be some, has suffered to any extent, if

they have at all. The Buffum, the Boston, the Dix, and dozens of kinds are as full of flowers as usual. The crop of Bartletts is lost for the year. Thus has our theory been fully borne out by the test of the past winter.

It would occupy more space than we can devote to a single article to discuss the whole subject of acclimation. It rami-fies into many branches. But this at least is established, that both artificial and natural selection accomplish important results, and, where the former is aided by hybridization, all the qualities which attach to half tender species may be certainly transferred to the hardy ones; just as the rich colors of the tender Indian rhododendrons are being transferred to the hardy hybrids, and the glowing tints of the Bengal roses to the hybrid perpetuals. These are the results of artificial selection.

But as hybridization is less likely to take place with coniferous or hardy deciduous trees, natural selection must be the basis of acclimation. Seeds must be taken from the very coldest limits at which any particular tree may grow. Thus the *Washingtonia* has two localities, one much more elevated and colder, near the top of the coast range. Seeds of these trees will be therefore more likely to produce a hardy progeny than those from the lower and warmer locality. So important is this in rendering these gigantic monarchs of the forest ornaments of our garden, that none other should be planted with the hope of real success. The beautiful *Siberian Arbor Vitæ* is supposed to be only a variety of our common species, accidentally growing in an elevated and cold region, where its habit was dwarfed by cold, till, in time, its progeny partook of the same character. Such may not be the fact, but we are led to this conclusion from the almost identical character of the tree, not certainly sufficient to make a specific difference.

The great fact should always be borne in mind that acclimation can only be effected through the seed; and all attempts to make a half tender tree or plant hardy by propagation, soil, locality, exposure, drainage, &c., though mitigating the injury, will never remove the great evil. It may be abandoned at once. It will save much expense, valuable time, and grievous disappointment to recognize this.

CULTIVATION OF OUR NATIVE PINES.

BY EVELYN.

THE White pine, (*Pinus strobus*,) called in England the Weymouth pine, was one of the first American trees introduced into that country, where it has always been highly prized as an ornamental tree. It has been more thoroughly appreciated in England than in America; but no person doubts its value, either to be planted as a timber or forest tree, or as an ornamental appendage to one's estate. According to Gen. Dearborn, who devoted a great deal of attention to tree culture, "the cones of the White pine must be gathered early in autumn, as the scales open about the first of October, when the seeds are released, which being furnished with a membranous wing, are speedily scattered by the winds to a great distance. The cones when collected should be laid in some dry place, where the scales will open, and the seeds can then be easily shaken out."

The time for sowing them is when the ground is first open in the spring, which is usually about the first part of April, on beds of well-pulverized soil. They may be planted still earlier than this in pots, which can be placed in any change of situation that may be required. In England it is usual to cover the young plants with nets to prevent birds from picking off the tops of the little seedlings while the husks of the seeds are upon them; also to screen them from the heat of the sun. The young plants should be kept quite clean, and occasionally watered in a careful manner, so as not to deluge them and harden the earth round about them. If they come up too close, the plants should be thinned out in summer, and the surplus removed to a separate bed, protected by shade, and watered freely but carefully. They should be set in rows, four or five inches apart, with about the same distance between the rows.

When the plants are a year old, they should be transferred to other rows in the nursery, about two feet apart, and the same distance between the rows. Here it is customary to let them remain, until they are to be planted out. The best time

for planting them out in our climate is during the first half of May. It is advisable not to allow them to attain a considerable size before they are planted out, as the smaller the plants, if not too small, the better they succeed. When large plantations are to be made, it is best to raise the plants on portions of the same ground, as it somewhat retards their growth to suffer a complete change of soil. It is also beneficial to their growth to transplant them once in two years, as by this process they obtain better roots, and acquire, by habit, the power of sustaining the operation with impunity, so that they may be afterwards transplanted into any soil with complete success. In all cases, when transplanting them, care should be taken not to cut or wound any portion either of the roots or branches.

When they have been removed to the spot where they are finally to remain, they require but little attention, except to keep them free from weeds, and to furnish them with such props and supports as circumstances may render necessary. They should be allowed perfect freedom in their manner of growth, taking special care to preserve their tops uninjured, that they may grow up tall and branch out in a natural way. Pruning is not to be used except in extraordinary cases, when it may be necessary to remove some lower straggling branch that is gaining a disproportional growth.

The rate of growth of the White pine in Great Britain, except in very favorable situations, is said to be slower than that of most of the European pines. Mr. Emerson, on the other hand, considers the White pine a tree of rapid growth in this country. He says, in his excellent work of the "Trees of Massachusetts," that "in 1809 or 10 a belt of pines and other trees was planted on two sides of the Botanic Garden in Cambridge, to protect it from the northwest winds. In the winter of 1841-2, when they had been growing thirty-one years, many of them were carefully measured by myself, with the assistance of the skilful and intelligent gardener, Mr. Carter. Ten of the White pines exhibited an average of twenty inches diameter at the ground, showing an annual growth of nearly two thirds of an inch in diameter. The two largest measured five feet seven inches in circumference at the ground, and

four feet eight inches at the height of three feet. The average diameter at three feet was sixteen inches and one half, and, at five feet, more than fifteen and one half inches. Rev. J. L. Russell gives me an account of a White pine which grew in a rocky swamp in Hingham, which, at the age of thirty-two years, gave seven feet circumference at the butt, and a height from root to top of sixty-two feet six inches, having thus grown almost an inch in diameter, and two feet in height annually."

The plate in Loudon's "Arboretum," etc., which is said to be a good representation of the White pine, as it appears when standing singly in English parks and pleasure-grounds, falls very far short of a true likeness of a standard White pine in our own land. Our native specimens, compared with his representation, exhibit far more sturdiness and grandeur in their general appearance, and a much wider spread and horizontal extension of their lateral branches. Gilpin has also failed to do justice to this tree, probably on account of taking his observations from English specimens, which are evidently inferior to ours.

THE PITCH PINE.—The cones of the Pitch pine should also be collected early in autumn, like those of the White pine, and the seeds obtained and sown in the same way, and at the same periods. Michaux states, that "wherever the Pitch pine trees grow in masses, the cones are disposed singly over the branches, and, as I have learned by constant observation, they release the seeds the first autumn after their maturity; but on solitary stalks, exposed to the buffeting of the winds, the cones are collected in groups of four, five, or even a larger number, and remain closed for several years."

General Dearborn remarked upon this passage: "This latter assertion I have in part verified, and have a cluster of cones, consisting of twelve on the end of one stem, which was cut from a tree in Roxbury in November. Being placed on a table in my library, in which there was a fire, the scales in a few hours began to open, making a snapping report, as each was disengaged, like that of burning hemlock or chestnut wood. In a few days all the seeds were disclosed, and readily released by a slight shake of the inverted cones.

“From the peculiar form and disposition of the membranous wing, attached to the seeds of this and of nearly all the cone-bearing trees, they acquire a rapid rotary motion on their axis, as they descend to the ground, which can be readily perceived by letting one drop from the hand held above the head.”

It should be observed that in new spontaneous growths of pines, in our woods, the little groups of seedlings are mostly found on the southeast side of the tree that produced the seed. This is explained by the fact that the cones are most liberal in scattering their seeds during the prevalence of a dry northwest wind, that wafts them as they fall in a southeasterly direction. Hence it would be advisable, if we wished to encourage the spontaneous growth of this kind of timber in a miscellaneous wood, to cut down the other trees on the south side of the pines, to allow them to sow their seed where the young plants would find space to grow and protection during the few first years when they require it.

I cannot do better than to quote from Mr. Emerson some further remarks on the cultivation and growth of this tree:—
“As the Pitch pine grows commonly on the most barren sands, its growth is not rapid. On sandy plains, too poor for profitable cultivation, and where only a single scanty crop of winter rye could be raised, far too small to repay the labor employed in its cultivation, I have observed the Pitch pines gradually encroaching on the deserted fields, and making an average of twelve or fifteen feet in height in ten years. From the examination of hundreds of trees which have been felled and split, on the same kind of land, and which were generally sixty or seventy years old, it appeared, that for the first sixteen to twenty-five years, the trees had increased in diameter at the rate of from two ninths to two fifths of an inch a year. After the twenty-fifth, the circles of growth were uniformly narrower, there being rarely so few as ten to an inch, and often twelve or thirteen. It would thus appear, that, in the very poorest land, this tree, when self-planted, increases at the rate of an inch in diameter in three or four years, for the first twenty-five years, and after that at the rate of one in five or six. In between fifty and sixty years, then, worthless bar-

ren sands may be covered with pines of a foot in diameter, and forty or fifty feet high."

This statement corresponds with the results of an experiment made by Prof. J. L. Russell, in planting Pitch pines upon a barren tract composed in great measure of drift sand, which was perfectly successful. Mr. Russell recommends "to transplant when the new shoot or growth is about half an inch in length." Mr. Emerson thinks the Norway or Red pine grows as rapidly as the Pitch pine, and usually to a greater height and with a cleaner stem, so as to make longer timber; but the timber is not equal to that of the Pitch pine in durability. As an ornamental tree the Norway pine would be generally preferred.

One remarkable quality of the Pitch pine, rendering it particularly worthy of cultivation on many places in the vicinity of the sea, is its power of supporting a long time the presence of sea water. It is often found in salt meadows, which are occasionally overflowed in spring tides, and it is the only species that bears it with impunity.

Loudon remarks, with reference to plantations of pines made on a large scale, "the best mode in some cases is to sow the seeds where the plants are finally to remain, either in drills, which appears to be the most scientific mode, as it will admit of regular culture between the rows, or broadcast; and when the surface is steep and rocky, in irregular patches. There are many objections to sowing, however, which generally render planting the most profitable mode. A great quantity of seed is required, to provide for the ravages made by birds and other vermin; and the labor of preparing the soil, if this is done properly, is greater in proportion to the number of plants wanted, than in the case of planting. There is also a certain loss of time, since plants three years old, which have been one year transplanted, will be at least three years in advance of seedlings raised where they are to remain. On rocky steeps, however, where there is little or no visible soil, and where the seed can only be deposited in clinks and crevices, or sown on occasional patches of soil, this mode of raising a wood of pines and firs may deservedly have the preference."

GEOTHERMAL CULTIVATION.

BY M. NAUDIN.

IN accordance with our intimation in our last number, we give the first part of M. Naudin's instructions for Geothermal Culture, and in our next issue will complete it. We think the subject one of great importance, and believe it will be the means of wintering, at slight expense and with perfect safety, various plants which have heretofore been kept in the greenhouse.—ED.

1. OF THE OPEN GROUND.

When we propose to heat ground artificially for the plantation of exotic vegetation, it is understood we do not speak of ground selected at hazard and prepared. The site must be chosen, and, if necessary, made where the locality is not suitable. The most essential point is to separate it from the surrounding soil, in order to avoid waste of heat, and thereby useless expense.

The site will vary according to the amount of exposure; the spot most exposed to the south—most open to the sun, and best sheltered from the north, northeast, and northwest winds, according to their prevalence and their baneful influence in different parts of the country, is to be preferred. The southern slope of a hill or mountain in those countries where such occur, high buildings, and walls with southern aspect, should the ground be open, are advantages all to be considered.

The best situation would be a high eastern wall, expressly built at right angles to the most unfavorable wind, as it would then offer a greater shelter, would concentrate in summer the sun's heat to within a few yards of its base, and offer, besides, a secure support to the temporary covers of which we shall presently speak. Its height should be determined according to that of the trees you intend to cultivate; for instance, 7 to 8 metres for orange trees and others of the same growth.

It must be borne in mind whenever a wall is built, intended to protect the cultivation of trees, that the space sheltered by the wall is about eight times its own height, measuring on a level with the ground, since the moving current of air which

passes over these walls, returns as down an inclined plain, towards the surface of the earth. The higher the wall, the greater the protection it will afford. It would be complete were it built with the two ends or extremities slightly advancing at an open angle, like wings. In this style, it would shelter in three directions. Besides, its summit could be protected by a hood, projecting about 15 to 18 centimetres, with rings and hooks fastened below in the stone work, to which may be secured the principal pieces of light-scaffolding which are intended to support a covering during winter.

The isolation of the ground is to be obtained by a very simple process. The portion of soil to be put under circulation having been selected, and the form determined on, a trench of one metre to 1^m 50 in depth must be dug around it; in this trench must be built (with inferior bricks) two parallel walls, with a space between them of 8 to 10 centimetres; this space is to be filled with pounded charcoal, which is a bad conductor of heat when dry; in lieu of which, straw, hay, moss, or any other non-conductor can be used. The two walls at the height of some centimetres above the level of the ground, should be covered in by a double row of bricks or tiles, placed crossways, and well cemented together, to prevent all ingress of rain water into the middle of the enclosing wall, the exterior of which might be stiffened by ashlar work; but if the soil is firm its own pressure will make the wall sufficiently solid.

Air, being of itself a bad conductor of heat, suitable and sufficient isolation of the geothermal portion might be obtained by leaving empty the space in the brick walls, which should anyway be closed above; but here occurs a difficulty; the ground contained in the enclosed space, from having been prepared for plants, would be sure to settle and push the interior against the exterior wall, consequently causing the space between to disappear. This inconvenience may be obviated by placing vertically in the space between the two walls, and at distances not exceeding 50 to 60 centimetres, rough pieces of wood, or little blocks, such as are used (in France) for firing, equal in thickness to the space in the partition. This would be, in all probability, sufficient support to prevent

the crushing of the partition. Wood being one of the worst conductors of caloric known, the use of it here will be preferable to that of stone, as the latter is a pretty good conductor of heat, and by coming in contact with the two partitions of the enclosure would occasion a certain loss of heat to the geothermal enclosure.

The enclosed ground, if it cannot have the shelter of a wall, might have a level surface, but it would be better were it slightly convex. In the first place, the plantation would appear more sightly; and in the next, a greater depth of earth obtained in the middle, which the tallest trees would naturally occupy. But, should the site be against a wall, it would be best if the earth sloped forwards, in the style of the shelving beds adopted by the kitchen gardeners in the environs of Paris, thus causing the sun to fall more perpendicularly on the earth, and infusing therein more heat than when its rays are horizontally directed; and far more than if it sloped the other way. The first row of trees, say orange trees, could be trained against the wall; the next, at a distance from them, would grow unrestrained; but they should be arranged according to height, placing the tallest against the wall, the lowest at the opposite side, in order to afford each an equal share of the warmth of the sun and light.

The depth of the ground artificially warmed should vary according to the difference of cultivation intended; but, as in general, many kinds of plants differ in height, and whose roots are of unequal dimensions in depth, will most probably be assembled together, a medium of thickness may be adopted of 1^m 30 to 1^m 40. In no case should the depth be less than 0^m 80; and then it would in that case only suffice for herbaceous or stemless plants and weak shrubs. The depth should also be determined on, by the degree of power for heating. Should the cultivation of larger trees be contemplated, for instance, date trees, of which we shall speak hereafter, a depth of two metres would not be out of the way.

We have supposed, thus far, the earth to be homogenous, and of good quality, and we have disregarded the position of the heating pipes, but in actual construction the work would be found more complicated. It would be most desirable that

the earth should be isolated or detached below as well as around, for it is evident that there would be a loss of heat otherwise, less great however than might be imagined, for this reason: the greater the mass of ground warmed, a longer period would it retain the heat.

In most cases the earth selected for geothermal cultivation should be formed of prepared mould. First the basin must be dug out, and then the enclosure constructed, the hot pipes laid on flag stones or flat stones, or even more simply covered with rubbish to a depth of some centimetres, before the earth is thrown in. Care must be taken not to throw too much at first against the surrounding wall, but to fill in gradually, in order to avoid a pressure of mould, as too much might, as we said before, crush the enclosure, and do away with the open space left between the two walls.

The choice of grounds, moreover, is not of slight consideration; the most dissimilar plants will adapt themselves to the same soil, provided it is healthy and of good quality, for the method employed by the gardeners of Paris must not be followed as a rule, in the composition of ground for orange trees. Their scientifically mixed composts are not in the least necessary, and orange trees grow well in all soils, even on the almost sterile sands of the sea shore, provided they are stimulated by a sufficient degree of heat.

The best ground for forming geothermal plots would be, in our opinion, the ordinary open ground, neither too calcareous nor too silicious, that which may have remained undisturbed for some years, as fields or unweeded. There would be no objection to mixing, if necessary, some leaf-mould, or a little decomposed matter, or mineral manure, if judged useful. On the contrary, all earth worn out by exhausting cultivation must be rejected, as well as any too full of the organic remains of animal matter; for it appears to be very probable that many of the maladies which assail cultivated plants arise from no other cause than an excess of manure, and manure of bad quality. In fact, there is perhaps no known instance where plants become really diseased in those soils which the hand of man has never touched.

2. THE MODE OF HEATING THE SOIL.

After speaking of the advantages of hot-water apparatus furnished with tubular boilers, such as Week's, M. Naudin proceeds thus:—An apparatus of that kind enables the stove to be placed at a distance from the spot requiring heat, which renders it useful when geothermal cultivation is purely ornamental. For instance, in a public garden or park of some extent, where one desires to mingle ordinary vegetation with groups of exotic shrubs, arranged for an agreeable *coup d'œil*, one single tubular boiler, concealed by buildings or green thickets, could supply the necessary ground-heat for all. From one boiler would spring all the warm ramifications conveying life to some of these scattered groups. But to obtain the full benefit of this contrivance, the underground mains must be completely isolated as well as the geothermal branches, in order to retain all the heat, for were they to come in contact with the ground, they would in some degree, or even totally, lose it ere it arrived at its destination. The chance of this might be avoided by making them circulate through brick passages, securing round them a layer of air some inches in depth; but once introduced into the ground to be heated, they should be brought almost into contact with it, either by means of a thick layer of cement or concrete, with which they should be coated, and which would serve both to protect them from the damp and to moderate the heat; or else by means of bricks placed between them, or a tiled channel forming a continuous covering for them. The return pipes should pass, of course, through the same channel as the flow pipes, but on a lower level.

What must be here considered, and on which alone experience can pronounce, is at what distance from the surface of the soil the hotwater pipes ought to be laid in order to produce their full effect. Would it be best for them to lie at the depth of the geothermal border, that is to say, of 1 metre to 1^m 50; or that they should pass through the upper layer at a slight distance from the surface? Ought they to follow the wall enclosing the geothermal border, or should they act principally towards the centre of the ground? Or

otherwise might it not be beneficial to divide the pipes into small ramifications, distributed in the soil at different depths?"

These are points to which we call the attention of horticulturists experienced in the use of hotwater apparatus. Anyway, I am inclined to believe that the best plan would be to lay the pipes 15 to 20 centimetres below the surface of the ground, rather than at a greater depth, in order to follow out as much as possible what passes in nature, where the superficial layer of earth is most warmed by the sun's rays.

Heating by means of hot air is much more simple and less expensive than that effected by the aid of hot water; and though the more primitive system, is not on that account to be despised. Although a boiler, owing to its great range, is better suited to ornamental cultivation, the simple stove, warming at once by the air it puts in motion, appears to us more suitable to common geothermal culture. The stove should be placed behind the principal wall, rather above the level of the earth which requires to be heated. It could be also placed literally at one of the extremities of the ground, but in this case it would act less regularly than in the first case, and a long piece of ground might require, perhaps, two stoves to keep up the heat, one at each end. However, this inconvenience would be counterbalanced by the simplicity of the apparatus, and the few accidents to which it would be liable. Common pipes of baked clay, like those used for chimney-pots, might be substituted for the metal pipes of a hot-water apparatus; or, instead of pipes, one might employ for the same purpose underground brick drains. These drains should be single or branched, the essential being to have a good draught at one end, by which the air when exhausted of heat could escape; and this might be obtained by the aid of a draught stove (*foyer d'appel*). An apparatus of this kind, constructed according to the true principles of flue construction, would be easy to manage, and it is probable its efficacy in heating the ground would not be inferior to that of the best hot-water apparatus.

POMOLOGICAL GOSSIP.

THE FRUIT CROP OF THE YEAR.—The injurious effects of the severe cold winter upon fruit trees are now very apparent. Not only are the peach buds entirely killed, but the young wood partially destroyed. The cherries too have had their flower buds destroyed quite as completely as the peaches. We have not among hundreds of trees seen the first flower. Pears are injured, more or less; while the trees of several varieties are full of flowers as usual, others show scarcely a bud. The Bartlett, Beurre Clairgeau, and Beurre Bosc, seem to have suffered most, and there will be a great deficiency of these sorts in the autumn. The Louise Bonne of Jersey has proved one of the hardiest, the trees being loaded with flowers; others, which are quite full of bloom, are Belle Lucrative, Glout Morceau, Swan's Orange, Seckel, St. Michael Archangel, Van Mons Leon le Clerc, Beurre Langelier, Boston, and some others. Even apples are some hurt, and in some localities there are but few flowers; in the immediate neighborhood of Boston they are not injured so much as a few miles back, where the thermometer sank to 25° degrees below zero.

Various conjectures have been advanced upon the cause of so much damage, and some cultivators have thought it was the early and severe frost of October 1, when the temperature was only 26° or less, according to locality. But we are inclined to believe that it is wholly attributable to the unprecedented fall of the thermometer in February, being no less than 69° in little more than twelve hours, or from the mild temperature of 46° to the frigid one of 18° below zero. That it cannot be attributed to the cold of October is certain; for the ends of the shoots of trees were green and fresh for weeks afterwards, whilst they are now, especially the Bartlett, killed partially or wholly. The trees were not in a condition to resist so sudden a low temperature, which actually froze and disarranged their tender tissues.

JAPAN GRAPES.—Mr. Fortune, now in Japan, sends the following account of the Jeddo grape to the Gardeners'

Chronicle:—The vine of this district, which you may as well name at once the “Jeddo Vine,” produces a fruit of great excellence. The bunches are medium sized, the berries are of a brownish color, thin skinned, and the flavor is all that can be desired. This grape may be valued in England, where we have so many fine kinds, and most certainly will be highly prized in the United States of America. A few years ago, I was travelling from Malta to Grand Cairo, in company with Mr. Bryant, the celebrated American poet, and a genuine lover of horticultural pursuits. This gentleman informed me that, owing to some cause, our European vines did not succeed much on the other side of the Atlantic, and suggested the importance of introducing varieties from China, where the climate, as regards extremes of heat and cold, is much like that of the United States. I had never met with what I consider a really good variety of grape in China, and therefore have not been able to act on Mr. Bryant’s suggestion. At last, however, we have a subject for the experiment, and I urged its importance on Dr. Hall, who is an American citizen, and who has already introduced a number of plants to his country from China. He enters warmly into the matter, and no doubt will accomplish the object in view.

I therefore conclude this article by giving notice to your readers on the other side of the water to look out for the arrival of the “Jeddo Vine.”

POMOLOGICAL CONGRESS OF LYONS, FRANCE.—In our previous volumes we have given the results of the deliberations of the Pomological Congress of Lyons since its organization, so that our readers are familiar with what has transpired in an association composing the prominent pomologists of Europe. The fourth session was held in Bordeaux, in September, 1859, under the patronage of the Horticultural Society of the Gironde, and the principal fruits examined were peaches and grapes; pears having occupied the previous meetings. A few new pears were examined, and the following ten varieties were admitted as deserving the recommendation of the congress:—

ALEXANDRINE¹ DOUILLARD.—This variety, which is very prolific, was received of M. Douillard of Nantes. The fruit,

which ripens in October, is very large and very good; the flesh is melting and refreshing. The fruit is subject to rot upon the tree, before maturity, which caused it to be rejected the year previous, but gathered early, and well preserved, it is really very good.

COLUMBIA.—A variety of American origin; productive, and ripens in December; fruit large; very good, with a half fine melting flesh. [We believe the American Pomological Society does not entertain so good an opinion of this excellent pear as the French pomologists. Perhaps it will be thought more of after this endorsement.—ED.]

DOCTEUR GALL.—The tree, which is very delicate upon the quince, and not very productive, was obtained by Van Mons. The fruit is melting, with a fine flesh; of medium size; very good, and ripens in October.

DOYENNE DE BORDEAUX.—A variety the origin of which is unknown; productive, and ripens in December and January. The fruit is large and good, with a breaking and juicy flesh. This variety, which greatly resembles the Doyenné d'hiver, is specially recommended for the department of the Gironde; it grows abundantly, and is much esteemed in the environs of Bordeaux.

DUC DE NEMOURS.—This pear, attributed to Bouvière, is also known under the name of Colmar Navez, and Beurré Noisette, which have been annulled by the congress. It is very prolific; the fruit, which ripens in October, is medium size and good, with a half fine and melting flesh.

HOWELL.—Variety of American origin; ripening in September and October, and very prolific. The flesh is half fine and melting, and the fruit very large and good.

POIRE MONTCHALLARD.—This variety, with its synonyms, Mousallard, Belle Epine fondante, Epine d'Ete, Epine Rose, old enough to be known to the congress, has been found near the Chateau de Mareid, on the property of M. Montchallard: it is abundant in the environs of Bordeaux, where it is much esteemed for its beauty and earliness. The tree is very productive, the fruit medium size and very good, and the flesh fine and melting.

PROFESSOR DU BREUIL.—This variety, introduced by M. Alph. du Breuil of Rouen, is very productive, and ripens in August and September. The fruit, which is of medium size, is very good, and the flesh is very fine and melting.

SAINT GERMAIN GRIS.—This productive tree is a variety of the old St. Germain. In the *Revue Horticole* for 1857, (p. 8) is a note by M. Du Breuil, containing the results of an experiment made by him in grafting this pear. The congress thought that the gray color fixed by the graft was only accidental. This pear, which ripens in winter like the St. Germain, is of large size and very good, with a half fine and melting flesh.

VINEUSE D'ESPERIN.—A variety produced by Major Esperin. The tree is very productive. The fruit, which has a half fine melting flesh, is of medium size, very good, and ripens in September.

The varieties, upon which action was adjourned to the next congress in 1860, were as follows:—

Varieties adjourned with recommendation: Bergamotte Laffay, Beurré Bailly, Beurré Luizet, Precoce Goubault, Brandywine, Colmar de Mars, Des Vergers, Dix, Doyenné Nerard, Heathcot, Henri Van Mons, Louise Bonne de Printemps, Madame Millet, Monseigneur Des Hons, Mouille Bouche de Bordeaux, Pater Noster, Passe Crassane, Poire Peche, Boutot, Ravu, Saint Germain Puvic, Swan's Orange, No. 1 and No. 2, Tardive de Toulouse.

Varieties adjourned without recommendation: Adele de St. Denis, Ananas de Courtrai, Beurré Dumont Dumortier, Beurré Mondelle, Beurré Quetelet, St. Lezin Cambronne, Conseilleur Ranwez, Siculle, Le Juive, Omer Pasha, Rousseion, Rousselet double (Esperin), Zephirin Louis, (Greg.)

Fondante du Comice was added to the rejected list of the previous year, as it is not always a melting pear, and without much flavor.

The following are additional *synonyms* of the old Jaminette, viz., Poire d'Austrasie, Pyrolle, Mariot, Belle d'Austrasie, and Crassane d'Austrasie.

GRAPE GROWING IN EASTERN PENNSYLVANIA.—The Fruit Growers Association of Eastern Pennsylvania held its meeting

a few weeks since, and discussed the culture of various fruits, the selection of sorts, &c. After the discussion upon the grape, the following vote was taken on the *five* best varieties:

Concord,	9 votes.	Isabella,	5 votes.
Delaware,	8 do.	Hartford Prolific,	3 do.
Diana,	7 do.	Catawba,	3 do.
Clinton,	6 do.	Taylor and others,	1 each.

One cultivator of considerable experience stated that he had found that grapes grown in the shade are sweeter than those grown in the sun.

MISSOURI JANET APPLE.—A new apple, said to be a first rate market fruit, not excepting the Smith's Cider or Rome Beauty. It is superior to either in quality of fruit, being much richer, more highly flavored, and leaves them far behind as a long keeper. It is described as follows:—Size above medium, yellowish white, nearly covered with red, with bright red cheek on exposed side; flesh compact, tender, juicy, with a very rich subacid flavor; tree very healthy, a fine grower, and most abundant bearer; keeps till May and June. We copy from the Gard. Monthly. This reads like a description of the Gilpin or Carthouse.

THE CULTIVATION OF NATIVE FLOWERS.

BY MRS. ISAAC CLEMENT, MECHANICSVILLE, N. Y.

8. LAU'RUS BE'NZOIN, Spicebush. Found here in dense swamps, but will grow in common soil; young growth often frozen off; flowers small, appearing before the leaves, which are large and handsome; turning early in autumn to a light yellow; but its spicy bark is its chief value; two to four feet high. May.

9. TIARE'LLA CORDIFO'LIA, Mitre-wort, Gem fruit. A neat little plant, found here in wet woods; flowers small, and white in loose raceme; three to four inches high; leaves radical, resemble currant leaves; worthy of cultivation in a collection of wild flowers; root creeping. May and June.

10. MITE'LLA DIPHYLLA, Currant-leaf, Bishop's cap. Very similar to the last, and belonging to the same order; seeds

black and glossy; flowers white, arranged the same as in the last, but different in their structure. May and June.

11. AZA'LEA NUDIFLO'RA, May-apple, Swamp pink. This is the only variety found here, has beautiful reddish flowers, of curious structure, a crooked, branching, deciduous shrub, thinly clothed with leaves; looks better seen from the edge of some wood than under cultivation. I have never had much success with it, although I gave it a situation very near like its native place. Its flowers are so handsome it is well worth a trial. May.

12. CO'RNUSTOLON'FERA, White-berried Dogwood. A deciduous shrub, six to eight feet high; flowers white, in terminal clusters; a pretty shrub for its bright red twigs in winter; inclined to grow prostrate, but easily kept in shape by pruning; will grow in any soil or situation; sometimes blooms again in the fall. May and June.

13. VIBU'RNUM ACERIFO'LIUM, Maple-leaved Viburnum. A rather pretty deciduous shrub, found in upland woods and hedgerows; from four to six feet high, bearing cymes of white flowers, and handsome leaves; easily cultivated in any soil. June and July.

14. VIBU'RNUM OXYCO'CCUS, High Cranberry. A taller shrub than the above, branches more crooked, flowers nearly the same, but ripening an acid fruit, resembling the cranberry in flavor; grows well in any soil. June and July.

15. PEDICULA'RIS CANADE'NSIS, Lousewort. Rather a singular name for so neat and cleanly a plant; leaves radical, finely divided; stem ten to fifteen inches high, bearing a short spike of yellow flowers; but its chief beauty is in its leaves; not very plenty here; the only plant I ever had I found growing on the west side of an open, hilly wood; root fibrous; easily transplanted. May to July,

16. AQUILE'GIA CANADE'NSIS, Wild Columbine. Easily cultivated in common garden soil; it should have a place in every garden for its color, which is not known among the double varieties, being scarlet outside and yellow within. May and June.

17. CYPRIPE'DIUM PARVIFLO'RUM, Yellow Ladies' Slipper. Not very plenty here, found in upland woods, easily removed,

and will increase in size yearly, throwing up several flower stems, one foot high, from the same root, crowned with numerous curious yellow flowers; root fibrous. There are other kinds found growing here, but not so pretty. May and June.

18. *HYPOXIS ERECTA*, Star-grass. Small, bulbous, grass-like plants, found in open upland woods; leaves all radical; flower stem six to eight inches high, divided at the top, each branch bearing a yellow flower; will grow in any soil or situation. June and July.

19. *THALICTRUM DIOICUM*, Early Meadow Rue. This variety I have found in moist ground in open places; one to two feet high; with beautiful leaves, and umbels of small white flowers; cultivate in moist ground; well worthy of growing for its handsome leaves. May and June.

20. *THALICTRUM CORNUITI*, Meadow Rue. A handsome herbaceous plant, growing here in moist ground, in open places, but will grow in any situation; three or four feet high; bearing umbels of small white flowers; remains a long time in bloom; root partially tuberous; easily transplanted; well worthy of cultivation. June and July.

IMPROVEMENT OF THE GLADIOLI.

FROM THE GARDENERS' CHRONICLE.

FEW if any plants have so rapidly risen from mere ordinary almost neglected objects to the first rank among garden flowers, as the Gladioli. The old and hardy species, byzantium and its varieties, though pretty, possessed no striking qualities. The tender but small Cape species, remarkable for their delicate tints, were too petite to attract notice; and cardinalis, always a brilliant plant, was too difficult to manage to become common. Time and time again have we worked over and potted and petted many of them, only to be rewarded with a scanty display of foliage and a very diminutive bloom. In fact, it was time thrown away to undertake their growth. Great, therefore, was the joy of cultivators when, thirty years ago, the *G. natalensis* was introduced: that would grow

freely in the open garden, and afforded an abundance of its yellow and orange-red flowers all the autumn; but its poor combination of colors did not please the amateur, and it was neglected for other more brilliant flowers. Fortunately, at this juncture of its decline the *gandavensis*, a Belgian variety produced from it, was brought to notice, and its brighter tints gave it for a time a prominent place. But in its turn, this, after a while, became too common and neglected. It was just at this period that the French cultivators, ever on the look-out for novelties, conceived the idea of improvement by hybridizing the free-growing, free-blooming and yellow *gandavensis* with the delicate but brilliant-colored *cardinalis* and other species. The result we all know. The first hybrids were too much like the parent, but continued efforts brought out from the dingy material the brilliant Victor Verdier, the golden Ophir, the blushing Berthé Roubardin, and the exquisite La Poussin, varieties with which our amateurs are acquainted, but which are said to be surpassed by those we have not yet seen. The cultivator who has done the most for this tribe is M. Souchet, of Paris, the raiser of more than three quarters of all the present popular sorts.

But the *Gladioli* are so easily raised that the honors of their production will soon be divided and shared in part by American cultivators. They seed freely, grow readily, and bloom in two or three years, so that the results of our labors are soon made known; and what is remarkable is, that seed promiscuously raised from the best varieties are certain to produce beautiful flowers, of course not so distinct as when hybridized, but so fine that they well repay all the labor, even if no very marked sort is secured. An English cultivator, who has raised thousands of seedlings, states that there is not a really poor flower among them.

We have ourselves a large number of seedlings which will probably bloom another year, and hope to secure something from among them. It is a pleasant amusement, which we recommend to our amateur friends, and as a guide to greater success we copy the following remarks from a correspondent of the *Gardeners' Chronicle*, which may aid them in their labors, and lead them in the right direction for the best re-

sults. Our Japan lilies, our camellias and our azaleas are unequalled by any of foreign growth, and why should not our collections of American Gladioli be equally rich and unsurpassed? Let each of our cultivators repeat the well-known phrase, "I'll try":—

The Gladiolus seems destined to occupy an important place amongst garden flowers, if we may judge from the rapid advance it has latterly made in public favor. A few years ago, the genus was comparatively unknown, except indeed as a curious and ornamental family of bulb-tuberous plants adapted for pot culture in fern-houses, the few species which had found their way into the flower gardens being turned to little account; while at the present time it has become one of the grandest and most varied of autumnal flowers.

The present races of Gladioli have been obtained by the intermixture of two or three species long since introduced, and of their progeny. The earlier steps, as is often the case, were less characterized by striking results than those of a more recent date, time having been required to break down the fixity of character which is more or less inherent in the so-called species of plants. This, however, accomplished, it is no longer mere variation of color that is obtained, but the varied characteristics of one race, such as habit, season, &c., become blended with the forms and colors of another, and these are again varied *ad infinitum*. The parent species appear in this case to have been *G. natalensis*, sometimes called *psittacinus*, and *cardinalis* for the higher colored sorts, and *G. blandus* and *floribundus* for those of lighter tint; whilst amongst the earlier hybrids which have in no small degree contributed to the present condition of the genus, are *gandavensis*, *ramosus*, *pudibundus*, and *Colvillii*. The intermixture of these plants has given origin to three distinct races, of which *cardinalis*, *ramosus*, and *gandavensis* are taken as the types. It is to the latter group that we now particularly refer, as forming a most valuable addition to the class of autumnal ornaments of the flower garden; but as the varieties of the *cardinalis* section bloom in June and July, and those of the *ramosus* section in July and August, the Gladiolus may

be said to furnish a long continued succession of its beautiful flowers.

The seedlings of the *gandavensis* breed have not only become numerous, but amongst them two distinct types of flower may be discovered. Hence, as selection has become necessary, it becomes important to fix on some points of excellence, by the aid of which the superior varieties may be retained, and the inferior ones rejected. It is only in this way that we can hope ultimately to attain to something near the perfection of beauty which the *Gladiolus* is capable of yielding under the directing skill of the cultivator, and of which symmetry of development is an important feature. The points of excellence will be found to reside chiefly in the qualities of habit, form and color, and these stand in relative importance in something like the order in which we have named them.

In respect to habit, the autumnal *Gladioli* are naturally vigorous, and this sturdy property must certainly be maintained. Some varieties have a tendency to produce a succession of flowering stems, and this must be taken as an additional recommendation. The spike of flowers must be bold, and the blossoms themselves all somewhat inclined to one side, so as to produce a good face. There is a tendency in some plants to throw them into two lines pointing in opposite directions, which arrangement is far less effective.

The flower of a *Gladiolus*, if examined, will be seen to consist of six pieces or divisions technically called the segments of the perianth, the six pieces being arranged in two whorls, one within the other, each whorl consisting of three pieces. In the *Ixia* and the *Crocus*, which belong to the same family, the six pieces are nearly or quite uniform, so that a regular flower is produced; but in the *Gladiolus* there is a certain amount of irregularity which has to be taken into account, and the object of the seedling raiser should be to modify this by imparting symmetry of development rather than to obliterate it, which would altogether alter the character of the flower. It will be seen that the contour of the *Gladiolus* flower is triangular, which general outline should be maintained; and although met with in two forms, yet in both it

shows off to advantage the lower segments or lip portion of the flower. The outline then should be in the form of a triangle, but the angles should be rounded off, and the more smoothly and regularly this is done the better. But here we meet the diversity of character already alluded to. In one set of varieties the triangle formed by the three outer or sepaline segments is erect, that is, with its apex upwards; the dorsal segment, which is a sepal forming the apex, and the lateral sepals the base of the triangle, as indicated in the annexed diagram, (FIG. 16), in which *s* represents the sepaline



16. OUTLINES OF THE FORM OF THE GLADIOLUS. 17.

and *p* the petaline divisions; the sepals being nearly equal in size, but the upper one rather the larger, and arched, while the petals which form a reversed triangle are more unequal in size, the two upper ones being larger, and the lower one smaller, forming a pointed central or one-leaved lip. In another group, equally handsome, perhaps even more so, this order is reversed, (FIG. 17), and the dorsal segment is a petal instead of a sepal, thus: the two upper sepals being rather larger than the lower, and spreading out like wings, while the two lower petals are smaller than the upper, and distinctly colored, so as to form a two-leaved lip. These two groups may be very well maintained separately, the former distinguished by having its greater breadth in the lower parts, being erect-flowered; and the latter known by its greater breadth being in the upper part, being reverse-flowered; while all varieties with a confused arrangement of the parts should be rigorously discarded, at least for breeding purposes. Very good indications of the two groups may be seen in the new varieties called John Standish, which is erect-flowered, and Rev. Joshua Dix, which is reversed-flowered, both being among the highest and richest colored crimsons that are known, and the former one of the most perfect in respect to

smoothness and substance, which are auxiliary qualities of no small importance.

In respect to color and marking great latitude may be allowed, according to individual fancy, but at least the colors should be pure and decided—rich, clear or delicate, as the case may be; and the lip markings should be distinct and well-contrasted, and moreover, they should be symmetrically disposed and confined to the centre petal of the erect-flowered group, and to the two lateral petals of the reversed-flowered varieties, or if continued on the lower sepals, they should be evenly balanced. The markings or stripings on other parts of the flower, if any, should also be clear and decided.

Thus it will appear that in order to carry on the improvements which have been so well commenced, the following rules in selected seedlings, at least those intended for breeding, should be rigidly observed. 1. The habit and constitution should be vigorous, the stems strong and sturdy, and if branching from the base so much the better. 2. The flower spike should be long and well furnished, the flowers all inclining to one side so as to form a face. 3. The outline of the individual blossoms should be either an erect or a reversed triangle, the lip-marking being confined in the former case to the one, and in the latter to the two lower petals, or if continued on the sepals symmetrically disposed. 4. The colors should be clear and the markings distinct. 5. The surface and margins should be smooth, and the textures firm and stout or fleshy, so as to be enduring. The new varieties hereafter raised may be considered superior, in the degree in which they approach the standard thus set up.

THE SILVER-LEAVED FERN.

BY THE EDITOR.

AMONG the variegated-leaved plants which have recently attracted the attention of amateur cultivators none have created more interest than the silver and tri-colored ferns. Common as ferns are throughout the whole globe, and almost

numberless as the species are, none have ever been detected with variegated leaves until the discovery of this superb plant. Nor does it appear to be a new freak of nature or sport, as most variegated-leaved plants are, for the progeny raised from the spores or seeds are precisely like the parent, showing that, unlike the variegated phenogamous plants, which rarely or never retain their variegation, this most beautiful fern is reproduced from seed; otherwise it would soon be lost, for it is difficult to propagate it in any other way.

The Silver fern (*Pteris argyrea*, *Moore*) is a native of Central India, where it was discovered by Mr. Lobb and sent to Messrs. Veitch of London, who introduced it to notice. It is a vigorous strong-growing species, with fronds attaining the length of five feet or more. These fronds are of a delicate light green, with a broad and distinct band of silver on each side of the principal nerve, and the nerves of the folioles presenting a rich and striking contrast of colors, which, added to the peculiar gracefulness and delicate formation of the fronds, has a charming effect.

The Silver fern (FIG. 18) is fortunately easy of cultivation, a very strong grower, and flourishes well under greenhouse culture, keeping it rather dry in winter while in a dormant state. To get it in its best condition, with fronds five feet long, it requires the increased temperature of the hot-house, abundance of moisture when growing, a shady situation as indeed all the ferns should have, and plenty of water. Under these conditions it is marvellously fine. It flourishes in a light soil of leaf mould, peat and sand, and requires plenty of pot room.

As the spores or seeds are abundantly produced and readily vegetate, and as the plants are precisely like the parent, it will soon become abundant, and should be found in every collection. In the summer it would no doubt thrive well placed in a hardy fernery till September, or in a cold grapery where the shade would be conducive to its health and vigor. As an ornamental object in the garden or greenhouse, nothing can be more attractive and interesting. It should form one of every group of variegated-leaved plants.



18. SILVER-LEAVED FERN.

FLORICULTURAL NOTICES.

LILIUM GIGANTEUM HARDY.—The hardiness of this noble lily has been most satisfactorily tested. One good bulb was planted out in our grounds last September, and covered with three or four inches of manure or leaves. A few weeks ago, the covering was removed, and the bulb has now thrown up four or five of its huge leaves, and appears quite as vigorous as any of the hardy lilies. No trial could be more complete. The winter was one of the most severe for twenty-five years, with the thermometer at 20° below zero. It will henceforth take its place among hardy plants, and we trust find a place in the gardens of all who appreciate the magnificence of the many fine lilies already introduced.

FARFUGIUM GRANDE HARDY.—We some time ago announced that this beautiful variegated-foliaged plant had proved hardy in New York. We have now to add that it has proved entirely hardy in our collection. A plant which grew vigorously last summer was left in the ground to test its hardiness. No other protection was given than a handful or so of leaves. It has already pushed up many of its leaf stems, and will, ere long, display its broad, leathery, shining deep green leaves conspicuously blotched with yellow. As an addition to the hardy variegated-leaved plants, it is an acquisition of the greatest importance.

NEW DWARF BEGONIAS.—A new race of miniature or dwarf Begonias has been produced by the Belgian cultivators, which are attracting much attention. It has already become apparent that, remarkable as the Begonias are, the plants occupy so much space that amateurs with small greenhouses are unable to possess but a limited number. These dwarf sorts obviate this necessity, for while they are equally varied and rich in their leaf coloring, they grow only six inches high, and form dense masses of foliage as strikingly conspicuous as they are neat and compact in growth. *Begonia Frederic Siesmayer*, raised by Van Houtte, is the original of the group. It is similar to *Rex*, but the zone of silver is larger and far brighter colored.

THE DOUBLE ZINNIAS are really very superb annuals, as double as the dahlia, and with all the good qualities so desirable in a plant, growing freely from seed, and blooming when only a foot high in a small four-inch pot. As showy garden flowers they will rank with the German aster; while, in the brilliancy of their scarlet, orange and yellow tints, they rival the dahlia. With such acquisitions as the Japan pinks and Double Zinnias, a few packages of seed will render every garden gay the summer through.

SOUVENIR DE LA MALMAISON CARNATION.—This is the name of a new and truly magnificent variety raised in Belgium. The flowers are three or more inches in diameter, very double, and of the same exquisite tint as the well known rose of the same name. Our plants are now in full flower, and quite equal the description which preceded its introduction. It is as highly scented as the favorite old Clove pink. A grand addition to our gardens.

577. PU'YA GRANDIFLO'RA *Hook.* LARGE-FLOWERED PUYA.
(Bromeliaceæ.) Mexico.

A hothouse plant; growing ten feet high; with white flowers, appearing in spring; increased by offsets; grown in light rich leafy soil. *Bot. Mag.* 1861, pl. 5234.

All the Puyas are of stately growth, with showy aspect, but this is "among the most striking of Bromeliaceous plants" to which it belongs. It has much the habit of the *Yucca*, forming a tufted head of large fleshy foliage two to three feet long, with sharp spines, drooping from their insertion on the branch; the flower stem grows ten to twelve feet high, and is terminated with a huge panicle of white flowers. It requires the heat of the stove. (*Bot. Mag.*, March.)

578. ÆCHMEA MELINONII *Hort.* COPIOUS-FLOWERED ÆCH-
MEA. (Bromeliaceæ.) South America.

A hothouse plant; growing one foot high; with crimson flowers; appearing in spring; increased by offsets; grown in light rich soil. *Bot. Mag.* 1861, pl. 5235.

Another showy plant of the Bromeliaceous tribe, with long, ligulate, coriaceous, dark green, striated leaves, from the centre of which rises a scape a foot high, covered with rich coral red flowers very conspicuous and showy. It is nearly allied

to *Æ. discolor*, an old and well known species. (*Bot. Mag.*, March.)

579. *COLEUS INFLATUS* *Benth.* INFLATED COLEUS. (*Labiatae.*) Ceylon.

A stove plant; growing three feet high; with lilac flowers; appearing in winter; increased by cuttings; grown in light rich soil. *Bot. Mag.* 1861, pl. 5286.

A plant of no great beauty, "but, flowering as it has hitherto done in December, its delicate spikes of lilac flowers help to enliven the plant-house at that dreary season." The stems are square, and often spotted with red. (*Bot. Mag.*, March.)

580. *IMPATIENS WALKERI* *Hook.* RED-FLOWERED BALSAM. (*Balsaminæ.*) Ceylon.

A hothouse plant; growing one foot high; with scarlet flowers; appearing in winter; increased by cuttings; grown in rich peaty soil. *Bot. Mag.* 1861, pl. 5237.

A brilliant species, allied to *Jerdoniæ*, with a succulent stem, and handsome ovate leaves, terminated with numerous orange scarlet flowers, which are freely produced in the winter months. It was raised from seeds received from Ceylon, and will form a pretty addition to our hothouse plants. (*Bot. Mag.*, March.)

581. *POLYGONUM CHINE'NSE FOLII PICTIS.* PAINTED-LEAVED CHINESE BUCKWHEAT. (*Polygonaceæ.*) China.

A greenhouse or annual plant; growing one foot high; with white flowers; appearing in summer; increased by seeds or cuttings; grown in common garden soil. *Bot. Mag.* 1861, pl. 5285.

A pretty variegated-foliaged variety of the Chinese Buckwheat, originated at Kew. "Some leaves are purple on the same stem with green ones; and both are marked with broad white lines, taking the shape of the letter V, margined on the inside with the dark line of deep purple or blackish green." It may be treated as an annual, and grown in the open air in our climate, where, with the *Perrilla*, tri-colored amaranth, and similar curious leaved plants, it will become a valuable acquisition. (*Bot. Mag.*, March.)

582. *DROSE'RA SPATHULATA* *Lab.* SPATHULATE SUNDEW. (*Droseraceæ.*) Australia.

A greenhouse plant; growing a foot high; with red flowers; appearing in spring; increased by offsets; grown in peat and moss. *Bot. Mag.* 1861, pl. 5240.

"A lovely species of Sundew," accidentally discovered in

the soil of a Wardian case received from Australia. It throws up long slender stems from little tufted plants, which are wreathed on one side with neat rosy purple blossoms. It is a fine plant for Wardian cases, or for greenhouse culture. (*Bot. Mag.*, April.)

583. CONVULVULUS MAURITIANUS *Boiss.* MAURITIAN BIND-WEED. (Convolvulacæ.) Africa.

A greenhouse or half hardy plant; growing ten feet high; with blue and white flowers; appearing in autumn; increased by seeds and cuttings; grown in light rich soil. *Bot. Mag.* 1861, pl. 5243.

A new, neat and very pretty *Convolvulus*, with small flowers an inch in diameter, clear blue with a white centre; not so showy as some of the well known kinds, but desirable for its small foliage and delicate growth. It has a perennial root, and may be grown in a pot in the house, or turned out into the border like other sorts, where it flowers abundantly all the autumn. (*Bot. Mag.*, April.)

584. BELOPERONE VIOLACEA *Planch.* VIOLET-FLOWERED BELOPERONE. (Acanthaceæ.) South America.

A greenhouse plant; growing a foot high; with purple flowers; appearing in winter; increased by cuttings; grown in light rich soil. *Bot. Mag.* 1861, pl. 5244.

A neat *Acanthad*, allied to the *Justicias*, with compact heads of rich purple flowers. It was introduced by M. Linden, who says that it flourishes freely in the open air. "Several plants turned out into the ground in peaty soil, towards the end of May, flourished with unusual vigor, and flowered with charming effect until the end of autumn." It will undoubtedly be a very valuable addition to our bedding plants. (*Bot. Mag.*, April.)

General Notices.

PALMS.—There are few places in Europe where so good an idea can be formed of the luxuriance and variety of tropical vegetation as in the noble Palm-house of the Royal Botanic Gardens, Kew. Standing in the gallery, we look down upon Bananas, Spice-plants, and hundreds of the most characteristic trees of hot countries. Here we always find some plant of peculiar interest in flower or fruit. Last year a member of the *Cocoanut*

genus blossomed for the first time. This gigantic and yet graceful tree (the *Cocos plumosa*) produced an enormous mass of pale primrose-colored flower-spikes, which for several days were as beautiful as a plume of feathers. The flowers have now been succeeded by many fruits, which are rapidly progressing towards maturity. The Wine palm (*Caryota urens*) is now in blossom; this is the first time this glorious tree has produced perfect inflorescence in Europe; it has previously made one or two abortive attempts to flower, but never accomplished the feat so successfully as at the present time. Another species, which is often confounded with this, blooms much more freely, and that even in a small state, viz., the *Caryota sobolifera*. *C. urens* is a common tree throughout the warmer parts of India and the East Indian islands. It is as useful as well as ornamental palm. By simply tapping it the natives obtain, every day in summer, from a single tree, as much as a hundred pints of a very pleasant beverage; on this account the tree obtains the name of the Toddy palm. Its fruit is not edible, the outer covering of it being of so acrid a nature as to blister the mouth. *Leaforthia elegans* is also producing flowers of an elegant and delicate rose color. This is the Australian Cabbage palm, so called because the young leaves form a by no means disagreeable addition to the dinner table. The inflorescence of *Areca Baueri*, the Norfolk Island palm, looks like an elegantly formed piece of cream-colored coral. *Sabal unbraculifera*, the gigantic Fan palm of the West Indies, is laden with large bunches of its black, shining fruits, each about the size of a grape berry.

Popular taste inclines to the cultivation of plants remarkable either for their form, size, or coloring of their foliage; we feel confident, therefore, that palms will shortly play an important part in this movement. But, says some one, palms cannot be properly cultivated except in a house of gigantic proportions like that of Kew; and who can afford such a stove, except, indeed, the ducal proprietor of Chatsworth? Yes, that is the point which has hitherto kept them out of our exhibitions; that idea has prevented our nurserymen from obtaining a stock of palms, and discouraged almost every one who would have tried the experiment. And yet there is just as much in the matter as truth. I have practically studied horticulture in more than half a dozen different countries, and my native land is the only one in which palms are considered unfit for general cultivation. In Prussia, in Saxony, in Austria, in Hanover, in Belgium, you will hardly find a garden of any note in which palms are not grown for decorative purposes. There are dozens of species which may be grown in the same sized pots, and not occupy more room than most of the plants which are cultivated for the beauty of their foliage. We hope soon to see prizes offered specially for palms, as they are now for *Dracænas*. Variety is what we want among fine-foliaged plants; we want as many kinds of gracefully-growing plants as can be obtained—why then should we not seek them among palms, whose characteristic features are elegance and beauty. There are palms which may be grown in the greenhouse, as well as those which require a stove. There are bright colors among palms, too—as, for instance, *Latania rubra*, *L. aurea*, and *Areca Verschaffeltii*; while for gracefulness of appearance there

are few Ferns which could rival a well-grown plant of many species of *Calamus* and *Chamædoria*.

The only objection which can be brought against palms is, that they grow too large; but people forget the time it takes them to attain any great size. A specimen of either of those we have named, or of many others which could be mentioned, would take from 10 to 25 years before it would become too large for exhibition purposes, and surely that is as long as we can expect any plant to remain in perfection.

So great is the demand for palms upon the Continent, that some nurserymen devote themselves almost exclusively to their cultivation, and in every establishment at least one or two houses are set apart for them. The nursery of M. Augustin, of Wildpark, near Potsdam, is one of the most noted for these plants. Every excursionist who goes to Berlin should visit this garden; it is only a trip of some 15 or 16 miles from that city. Palms will be found growing there, not by the dozen or the score, not even by the hundred, but by thousands and tens of thousands. It is almost impossible to conceive the number of those raised in this establishment without personal inspection. M. Augustin's catalogue contains the names of between two and three hundred species, and of almost all of them he has a large stock. All I can say in conclusion is, that I hope palms may soon become as plentiful as ferns in this country. Should the cultivation of this family become fairly started, there cannot be the slightest doubt that they will become thoroughly and generally popular.—(*Florist.*)

VIOLETS IN POTS.—I have that most beautiful and best of all the lovely tribe of violets, the old double blue, now in full bloom, each plant having upwards of a hundred flowers on it, and that in a 24-sized pot. In order to obtain this, I split the roots up into pieces and plant them in May, on a warm south border, of good soil, in rows one foot asunder, placing the plants six inches apart in the row. In August I take them up and put them into large pots, filled with good rich soil. I then place them in a frame, on a south border, after filling it with cinders to within six inches of the top. When that is done I plunge the pots, and in that condition I leave them until frost sets in, when the lights are put on and kept on, tilting them about an inch every day, and covering at night with mats. Violets love a dry bed of cinders, a cold frame, and a situation as near as possible to the glass.—(*Florist.*)

PYRAMIDAL HYBRID PERPETUALS.—Standard roses, inartistic and unpicturesque as they are, have 'held their own' for some years. It is time that some new rose idea was originated, and I hope, ere long, to have standard roses spoken of as things of the past—like stage coaches and road wagons. The culture of pyramidal roses will require more care and time than the culture of standards, which we all know is very simple; but the rose gardener will be amply compensated by such glorious effects as have never yet been seen in our rosaries.

Like all really good gardening ideas, the culture of rose pyramids, al-

though requiring more time and care than the culture of standard and dwarf roses, is still very simple, and may be carried out as follows:—Some strong two years' old stocks of the Manetti rose should be planted in November, in a piece of ground well exposed to sun and air. The soil should have dressings of manure, and be stirred to nearly two feet in depth. In the months of July and August of the following year they will be in a fit state to bud. They should have one bud inserted in each stock close to the ground. The sort to be chosen for this preliminary budding is a very old hybrid China rose, called Madame Pizaroni, a rose with a most vigorous and robust habit, which, budded in strong Manetti stocks, will often make shoots from six to seven feet in length, and stout and robust in proportion. In the month of February following, the stocks in which are live buds should all be cut down to within six inches of the bud. In May the buds will begin to shoot vigorously; if there are more shoots than one from each bud they must be removed, leaving only one, which in June should be supported with a slight stake, or the wind may displace it. By the end of August this shoot ought to be from five to six feet in height, and is then in a proper state for budding to form a pyramid. Some of the most free-growing and beautiful of the hybrid perpetual roses should be selected and budded on these stems in the following manner:—Commence about nine inches from the ground, inserting one bud; then on the opposite side of the stock, and at the same distance from the lower bud, insert another; and then at the same distance another and another, so that buds are on all sides of the tree up to about five feet in height, which in the aggregate will amount to seven buds. You will thus have formed the foundation of a pyramid.

I need scarcely add that the shoots from the stock must be carefully removed during the growing season, so as to throw all its strength into the buds. It will also be advisable to pinch in the three topmost buds rather severely the first season, or they will, to use a common expression, draw up sap too rapidly, and thus weaken the lower buds. The terminal shoot must be cut off early in June. In the course of a year or two magnificent pyramids may thus be formed, their stems completely covered with foliage, and far surpassing anything yet seen in rose culture. I have as yet found no rose equal in vigor to Madame Pizaroni, although when attention is turned to the subject other varieties may perhaps be found. If extra strong growth be desired, the stem may be suffered to grow two seasons before it is budded.

The most free-growing kinds, such as Jules Margottin, General Jacqueminot, Colonel de Rougemont, Triomphe des Beaux Arts, Lord Raglan, Souvenir de la Reine d'Angleterre, Triomphe de l'Exposition, and other kinds of vigorous habit, these will form grand pyramids, from six to seven feet in height. For smaller pyramids, those of more moderate growth may be selected. It will scarcely be advisable to bud more than one sort on a stem, as no two kinds will be found equal in growth; but as a matter of fancy varieties of different colors may be inserted, so as to make a variegated pyramid. Vigorous growing Bourbon roses may be employed for pyramids, and Tea-scented and Noisette roses, as the stock is highly favorable to their growth, but they should be protected in winter by ferns or branches of evergreen tied round them.—(*Florist.*)

REMARKS ON SHIFTING PLANTS IN POTS.—The precise time at which potting should be commenced, is too frequently determined by the date of the month, instead of the peculiar progress of the season, and the consequent state of vegetation. Whether artificial heat be employed to induce growth, or whether, as is much better, where practicable, plants be allowed to remain naturally excited, it is an infallible maxim that they should not be re-potted till some enlargement or development of their organs is apparent. This would certainly render the operation somewhat more desultory, but the principal deviation from the usual system would be in the week of its commencement.

Many cultivators pot the major portion of their plants in the decline of February; others not till March; but there are few who have not completed this process before the present month arrives. Too early potting is manifestly injurious to plants. No sooner is it effected, than watering is commenced to a liberal extent, and many of them are thus supplied with a large quantity of liquid food while wholly unprepared for its absorption. A saturated soil is inevitably the consequence; turgidity and disease are engendered in the plants; and their growth (if death do not intervene) is invariably unhealthy. This is not an imaginary case. Thousands of tender exotic plants are annually destroyed by such treatment; while the gardener, blind to the cause, still pursues the same routine, and of course similar results as regularly follow. Now, if the operation of potting were always deferred till vegetation had commenced its annual growth, the above catastrophe would be wholly averted. Water might then be safely applied, as the plants would imbibe and evaporate it with all requisite facility. Nor would they receive any check by disturbance at this period, if the removal were skilfully and judiciously executed, and the congeniality of attendant circumstances regarded and secured. Another disadvantage which accompanies early potting, is the absence of any criterion for adapting the size of the pot to the future necessities and extension of the plant. A healthy-looking plant is generally placed in a large pot, and before it has begun to grow, the water which is administered accumulates about its roots, and causes sickness; while the large quantity of soil only aggravates the evil; and continues so to do until the whole of it is removed, and the plant placed in a smaller pot. By potting at the period I recommend, the appearance of the plant will pretty accurately indicate the nature and extent of its subsequent growth, and the size of the pot can be varied accordingly.—(*Flor. Cab.*)

ARDISIA CRENULATA.—This is a very ornamental little plant, or greenhouse shrub, that may be readily managed as a window-plant. In February, its berries, a great ornament, are in perfection; the plant being, at that time, covered with a profusion of its coral-like fruit, that hang in small clusters beneath and among the leaves, and which retain the brilliancy of their color for a great length of time. Even without the berries it is a very beautiful plant for a room, having long serrated leaves of a fine glossy green. *Ardisia crenulata* will grow very well, either in a cold room, or one where there is a fire, and should receive a supply of water frequently, until the

commencement of April, after which it may have it every day. This, like all other plants with shining leaves, soon shows the dust; it is, therefore, a good plan to sponge the leaves once a week, by which means it will always be a gay and lively ornament for the sitting-room, and its health will, at the same time, be promoted. A mixture of loam and peat soil is found to grow it well.—(*Flor. Cab.*)

TIGRIDIAS OR TIGER FLOWERS.—The two species of *Tigridia pavonia* and *Conchiflora* make fine beds in the flower garden in sheltered situations, notwithstanding the ephemeral nature of their blossoms, which individually last but one day, the succession in which they are produced counterbalances this objection. They may be planted early in March, in pots of peat and sandy loam, and forwarded in a warm frame, being hardened off subsequently, planting them out in May; or they may be planted at once in the beds towards the middle of May, the soil being in good condition, filling up round the roots at planting with sandy peat. In the autumn it is an advantage to cover the surface of the beds with three or four inches of litter or leaves, to keep the frost from killing the stems too low down. In November they may be taken up and stored away among perfectly dry soil, and examined once or twice during the winter.—(*Flor. Cab.*)

MIGNONETTE.—As the common mignonette has ever been an especial favorite on account of its sweetness, perhaps the following method of inducing it to assume the character of a bush may not be uninteresting:—Not later than the beginning of April, sow a few seeds in deep pots, filled with rich sandy loam; place them in a melon-frame, where there is a good moist heat; when they have made about four leaves, pick out all but one strong plant in each pot; as they grow, pinch off all side shoots, taking care to leave a leaf at the bottom of each. When the plants have attained the height of twelve inches they will show their blossoms. The latter must be nipped off, and, at the same time, the plants will require tying up to thin sticks with matting; leave them about a week longer in the melon-frame, taking care to pinch off all side shoots; then remove the plants to the greenhouse, where they will have less water and plenty of air. In a short time they will again begin to put out the top shoots; but only one on each side must be retained, which must be led up the sticks, and all side shoots again pinched off. By this time the plants will be about eight inches high; the bloom must be again cut off, and the plants still kept in the greenhouse. In the autumn they will put out plenty of shoots from the top, and will form handsome bushes, which will come into flower in the following March. By cutting off the flowers occasionally, for bouquets in the spring, they will send forth shoots, and will continue to flower all the summer.—(*Gard. Chron.*)

MANAGEMENT OF EVERGREEN HEDGES.—The following valuable hints upon the management of evergreen hedges were made in answer to an inquiry about the treatment of yew hedges, which will not withstand our climate; but they are just as applicable to arbor vitæ and other evergreen

hedges; and all who would possess them in all the beauty they can so well claim when properly treated, should carefully read and follow the advice:—

There is a natural law about cutting in the boughs of all kinds evergreens, which can never be departed from in a single instance without doing more or less harm in the long run. It is this:—that the lowest boughs all round the bottom of a tree or bush be left longer than those above them, if only the fraction of an inch, and the rule holds good from the bottom boughs to the topmost ones, even of a *Wellingtonia*. The reason for the rule is this:—If the boughs or branches in any part of the tree or bush are allowed to get longer than those below them, the longest will throw off the drops when it rains, and shade those from the sun; and when the sun and rain are kept from an evergreen bough it soon languishes, and dies by inches. That is the only reason why laurels and fir trees, and all the rest of them, get naked below. People allow the top branches to spread over the bottom ones. Now, any one who understands that law, and acts on it, can never go wrong in managing a yew hedge, or a holly hedge, or a Portugal laurel out on the lawn, or a cedar of Lebanon, or a juniper, or a cypress, or any other such plant. The more leaders there are in a yew hedge, or a holly hedge, or a thorn or barberry hedge, or any hedge whatever, the better, provided that none of the leaders are allowed to get much stronger than the rest, which is secured by stopping, *in the summer*, any of the leaders which are much stronger than the rest.

About the young hedge of yews which is six feet through at the bottom, cut off eighteen inches of every one of the bottom boughs on both sides, and the hedge will then be only three feet through, and that is quite enough for a fifteen-foot-high hedge. Cut the next boughs a little shorter than the first, the third cut a little shorter than the second, and so on to the top, which at the height of five feet should not be more than six inches or eight inches through, if so much, but that depends on the positions of the leaders. Now is the best time for this cutting. At the end of July, regulate both sides again by cutting back such shoots as get over your rule. For the next ten years the bottom should not be allowed to get much wider than three feet. Meantime, yews would take just as much dung and liquid manure as a bed of celery, and would pay for it much better, by growing three times faster than without that help, which is the only assistance that can be given. Yew trees planted singly will do all the better for having the first foot or eighteen inches next the ground freed from branches, in order to let in a circulation of air; and all the leaders, except the strongest or best central one, should be stopped, and after that be kept in constant subjection. But the rule about having the bottom boughs the longest has not a single exception in the whole vegetable kingdom of evergreens. At the height of your trees, if they are single, leave four feet across the bottom, and allow only two inches more to extend yearly, till the trees are ten feet high; then six inches annually for the next six years; after that they will need very little to be done to them. But to get them up quick, ply them well with liquid manure of moderate strength. We planted five hundred miserable little yews in 1855, in, or rather over, a solid bed of very good rotten

dung, just for a row of celery. They are now finer than your plants, and shine again, but they have had hogsheads of liquid manure.—(*Cot. Gard.*)

HOW TO FLOWER CALLA ETHIOPICA BY CHRISTMAS.—Bring your plants to rest in midsummer, by exposing them to the full sun in a place where they are sheltered from rain. Don't water them. Middle or end of August take them out of pots; clean the root-stock from all decayed matter and from young accretions; re-pot in good, fertile soil, rather heavy, but part sandy; water and expose them to the sun in the open air. Water freely till the season compels you to house them. Take some to the warm-house; put them in a sunny place, very near the glass, where they will remain compact. Getting stalky spoils their beauty. The more they got isolated in the summer, nay, the more they got wasted, the sooner will they flower in the warm-house. Now take other plants which you housed in the greenhouse to the warm-house, and you get a constant succession of flowering plants. Carry back to the greenhouse those which have flowered, and they will flower again at the general period of vegetation in the spring. Often they will even flower a third time.

The sun not only elicits plenty of flowers, but is a most necessary agent in *opening* them. That accounts for stillborn flowers in sunless places. (*Gard. Monthly.*)

REMARKS ON EUPHORBIA JACQUINIFLORA.—Among the numerous plants which adorn our stoves in the autumn and winter months, there are few that excel *Euphorbia Jaquiniflora*. They are not a flower for one day or week only, but of some continuance, and when well grown, they are worthy of a place in any stove. If you think my method of the same worth inserting in your widely circulated magazine, they are at your service.

About the beginning of February, or as soon as my old plants have made young shoots from three to four inches long, I select as many shoots as plants required for cuttings, and as strong as I can get them, allowing a small portion of old wood to each cutting, and insert them into a pot of white sand, well drained; place them under a hand or bell glass in a corner of the stove or propagating house. In the space of three weeks they will have taken root (they strike freely). I then remove the glass and harden them gradually, pinching the top of each cutting, in order to induce laterals, and remove them to a situation as near the glass as possible. As soon as they begin to grow after being stopped, I pot them off separately, into small sized pots, in a compost of sandy peat and leaf mould, rather sandy for the first time of potting. Care must be taken not to allow them to run off to two or three shoots only, as they are certain to do if neglected, but that is readily prevented by pinching of the tops as they grow sufficiently long to admit of the same. I do so, as occasion requires, all summer up till September, when I allow them to make flowering shoots. I pot them frequently during the season, three or four times at least, always draining the pots well with broken crocks or lumps of dry peat. Water is given sparingly until they show flower, when a pretty liberal supply is given.

The proportion of compost used is one spadeful of leaf-mould to two of peat; by these means I can and have plants from three to four feet high, with from nine to twelve spikes of flowers, from ten to fourteen inches long. I throw out my old plants as soon as I see my cuttings are struck, and make room for something else. Splendens, and several others, I grow with equal success in the same sort of compost, but, as is well known to all growers of plants, they will not become specimens as soon as *Jacquiniiflora*.—(*Flor. Cab.*)

THE CHINESE PRIMROSE.—This charming plant (*Primula sinensis* or *prænitens*) is become such an established favorite that nothing need be urged in its praise as a decorative plant for the window or greenhouse in the dreary winter months, when so few flowers are to be had. The new fringed varieties are, however, especially beautiful, although wanting in the variety of color to be met with in other tribes of plants. Noticing an inquiry recently made as to the management of this plant, I venture to offer the following hints:—

The Chinese primrose requires the simplest treatment; and perhaps the following account of a successful method of cultivation may be found useful to those who have not hitherto paid much attention to it. Seeds may be sown in succession in May, June, and July, to furnish a supply throughout the winter and spring. Let them be sown in light sandy soil, and placed in a moderate hot-bed frame, or an ordinary greenhouse would do; as soon as the plants are large enough, prick off into other pots or pans as many as are required, and place them near the glass, to prevent them from becoming drawn; which, at any stage of their progress, would greatly injure them. As soon as they are fit, pot them singly into thumb-pots, giving increased air; when established, they may be placed in a cold frame, kept at first rather close, afterwards give more air, and shift progressively until they are in pots of the required size; six-inch pots will generally be found large enough, except for specimen plants, which may be put into an eight or ten inch size. The soil must be gradually increased in strength, until it is composed of equal parts loam, peat, and leaf mould, mixed with a little sand and fine charcoal. The pots must be carefully drained, as the plants require liberal supplies of water. They may remain in the frame until the approach of frost, and may then be removed to the greenhouse. Those of the first sowing will be in flower by the beginning of October, the second by Christmas; those of the third or July sowing, should be wintered in five-inch pots; any premature flower stems they may show pinched out, and be finally shifted in the beginning of February. As there may be danger of the collars of the plant being affected by damp during dull weather in winter, they may occasionally be supplied with water from below. In this way, and by giving abundance of light, air and water, handsome plants may be produced; which, mixed with a few common things, such as clyclamens, tree violets, lily of the valley, crocuses, snowdrops, and winter aconites, all of easy cultivation, will make a charming show at Christmas time, and until spring.—(*Flor. Cab.*)

Massachusetts Horticultural Society.

OPENING OF THE HALL, Thursday, May 23d, 1861.—The first public exhibition of the Society was opened on Thursday, May 23d, and continued till Saturday, the 25th.

During the winter the arrangement of the tables in the Hall has been changed, and instead of running lengthwise of the room, as they did last year, shutting off the light from one side of each of them, they are now crosswise, which shows off the plants to much advantage. On these tables the plants were neatly arranged. Upon the walls were suspended the portraits of the Presidents of the Society, recently painted by order of the Society.

The exhibition was exceedingly fine. There was unfortunately a dearth of flowering plants, which gave a rather sombre aspect to the Hall, but, examined carefully, many of the variegated and large-foliaged plants were exceedingly interesting, and well rewarded their patient investigation. Beautiful as many of the ornamental-foliaged plants are, they are not to be—and never are at the great London exhibitions—put in competition with flowering specimens, which alone can make up a magnificent display.

The principal and indeed only collection of plants in flower came from Messrs. Hovey & Co., and consisted of upwards of forty plants, as follows: *Azalea Gledstanèsi*, a superb specimen, *four feet* in diameter, and covered with flowers; *crispiflora*, a pyramidal specimen five feet high; *Maitlandii*, *O'sbornei*, *Criterion*, *exquisita*, *coronata*, *Mad. Miellez*, *Symmetry*, &c. *Erica Cavendishii*, two feet high, and in profuse flower; *Beaumontia*, *ventricosa*, and four others: six very fine *Cinerarias*, including *Wonderful*, *Mrs. Colman*, and *Brilliant*: *Rondelètia speciosa*, a pretty new *passiflora*, (*hybrida floribunda*), *Státice Hålfordi*, *Aralia reticulata*, *Rhopala corcovadensis*, the rare *Ptèris tricolor*, and other new plants; six fancy *Pelargoniums*, large, and one mass of flowers; they comprised *Eulalie*, *Helen Faucet*, *Evening Star*, *Cambridge Pet*, *Belle d'Epinay*, and *Boston Belle*. A plant of the new and truly elegant *Souvenir de la Malmaison Carnation* (*perpetual*) with one flower, which measured nearly four inches in diameter, perfectly double, and just the same delicate color as the well-known *Rose* of the same name: *Gazania splendens* and the new double *Zinnias* in bloom. Also, cut flowers in great variety, among which were *Petunia Madame Jacotot*, a remarkable spotted variety, superior to *Inimitable*; new *Pelargoniums* *Napoleon III.*, *Monarch*, *Madame Furtado*, *Mad. Van Houtte*; *Roses*, *Clematis lanuginosa*, &c.

Mr. E. S. Rand sent a very fine collection of ornamental-foliaged plants, the most conspicuous of which was a specimen of the noble *Cyanophyllum magnificum*, nearly three feet high, and with leaves twenty inches long; also, *Caladium Belleymei*, very striking, similar to *C. argyrites*, but better; *C. Chantini*, *Latania rubra*, an elegant palm, *Rhopala corcovadensis* and *Jonghii*, *Campylobotris regalis*, *Ananassa sativa variegata*, the singular

Tillandsia acaulis zebrina, &c. Also, *Begonias* President, Van de Hecke, Duchess de Brabant, and others, the first named quite distinct and good. The specimens were in good condition, and several of them of very fair size.

Messrs. Evers & Comely contributed some very well grown and handsome plants, among which were huge specimens of *Begonias grandis*, *Miranda* and *Mad. Alwardt*; *Hoya variegata*, *Latania borbonica*, *Stephanotus floribundus*, and beautiful specimens of *Mycropteris elegans*, *Dicksonia linaria*, *Dodea liniata*, *Blechnum corcovadensis*, &c. The whole forming a well arranged and handsome group.

G. G. Hubbard sent a very large and remarkable specimen of the *Acrostichum alcicorne*, or Staghorn fern, and fifty other ferns, all well grown neat specimens of the several kinds. It is gratifying to see this beautiful class of plants attracting more attention.

From M. P. Wilder, six *Fuchsias*, *Francisia eximia*, the handsome *Cissus discolor*, *Puya Alstensteini*, and other plants.

M. Trautman had a very neat collection, consisting of seedling *Double Petunias*, *Pansies*, *Auriculas*, and a plant of *Lycopodium leptophyllum*.

From Jona. French, six handsome specimens of *Verbenas*, in fine foliage and well bloomed. J. McTear also contributed six specimens *Verbenas*, *Cinerarias*, and other flowers. From D. Zingerbel, of the Cambridge Botanic Garden, *Begonia Rex*, *Swainsonia coronilliflora*, and other plants. Cut flowers were sent by the President, J. McTear, G. W. Pratt, J. Nugent, T. G. Whytal, B. Bruce, F. Walsh, Wm. Wales, and others. Mr. D. Murray had a small but interesting collection of native wild flowers, and nearly one hundred species of native ferns and lycopods, including the pretty running fern, all put up and labelled in neat style. Mr. A. C. Bowditch sent a wreath of preserved flowers, which had all the freshness of newly cut specimens; among them was one of Messrs. Hovey's seedling *camellias*. Mr. B. has perfected the art of preserving flowers.

FRUIT: From the President of the Society, four dishes of handsome grapes, including the *Black* *Hamburgh*, *Cannon Hall*, and *Muscat of Alexandria*. From J. F. Allen, *Black Hamburgh* grapes and cherries. From H. Vandine, apples and pears. From J. Owen, *Newtown pippin* apples.

AWARD OF PREMIUMS AND GRATUITIES.

GREENHOUSE PLANTS.—For the best display, to Hovey & Co., \$15.

For the next best, to E. S. Rand, \$14.

For the next, to Evers & Comely, \$12.

For the next, to M. P. Wilder, \$5.

SPECIMEN PLANT.—For the best, to E. S. Rand, for *Cyanophyllum magnificum*, \$10.

For the next, to Hovey & Co., for *Azalea Gledstanesii*, \$8.

For the next, to G. G. Hubbard, for *Staghorn Fern*, (*Acrostichum alcicorne*), \$6.

For the next, to M. P. Wilder, for *Franciscea eximia*, \$4.

FANCY PELARGONIUMS.—For the best, to Hovey & Co., \$8.

CINERARIAS.—For the best, to Hovey & Co., \$4.

For the next, to J. McTear, \$2.

VEBBENAS.—For the best, to J. McTear, \$5.

For the next, to J. French, \$3.

For the best single specimen, to J. McTear, \$2.

CUT FLOWERS.—For the best, to Hovey & Co., \$6.

For the next, to G. W. Pratt, \$5.

For the next, to T. G. Whytal, \$4.

For the next, to J. Nugent, \$3.

For the next, to J. McTear, \$2.

GRATUITIES.—To Botanical Garden, Cambridge, collection of plants, \$5.

To M. Trautman, for the same, \$3.

To J. McTear, for the same, \$3.

To J. French, for the same, \$2.

To E. S. Rand, for new varieties Caladium, \$5.

To E. S. Rand, for new Begonia, \$5.

To E. S. Rand, for *Campylobotrys regalis*, \$2.

To E. S. Rand, for *Tillandsia acaulis zebrina*, \$2.

To E. S. Rand, for *Lantana rubra*, \$2.

To Evers & Comely, for *Grevillia robusta*, \$2.

To G. W. Pratt, for *Nepenthes distillatoria*, \$1.

To D. Murray, for native flowers and ferns, \$3.

To W. B. Bruce, for native flowers and ferns, \$2.

To J. French, cut flowers, \$2.

To T. Walsh, for cut flowers, \$2.

To Evers & Comely, for display, \$2.

To M. Trautman, for pansies, \$2.

To G. G. Hubbard, for ferns, \$6.

To W. Wales, for bouquets, \$5.

To W. Carter, for bouquets, \$2.

Horticultural Operations

FOR JUNE.

FRUIT DEPARTMENT.

The month of May continued cool throughout, but without frost, and moderately wet. Fruit trees flowered unusually late, and, up to this date, vegetation is quite backward. The season has been favorable for all kinds of garden work, especially transplanting trees.

GRAPE VINES in the graperies will now be swelling their fruit rapidly, and the temperature should be kept up by lighting fires on cool cloudy days. Air freely in good weather, and keep a moist atmosphere by frequent damping of the floor and walks. Top all laterals when too far advanced, and thin out the bunches if fine large berries are desired. Tie up all large

and strong shoulders. Cold houses will now require attention, while the grapes are in flower or just setting their fruit. Keep the house a little warmer for a week or two.

FRUIT TREES will now require much attention, as it is the season to prune and regulate the shape and growth of the trees. Summer pruning should be commenced now and kept up through the season; disbud all wood not needed, and pinch off all lateral shoots, which will form fruit spurs. Thinning the fruit should be commenced as soon as it attains a sufficient size.

STRAWBERRIES will require attention; young beds, recently planted, should be kept clear of weeds by frequent hoeing. Old beds in full bearing should be mulched with straw to keep the fruit clean. If dry weather sets in, give the beds a thorough drenching with water; it will amply repay in the increased quantity of the fruit.

GOOSEBERRIES should be mulched with straw, old hay or sea weed, using a *very small* quantity of salt to keep the whole moist.

FRUIT TREES in pots should now be removed to the open air, have a mulching of old manure, and be freely watered.

INSECTS should be looked after. Oil soap, properly prepared, will kill the green fly and slug.

CURRENT BUSHES, in full bearing, will be benefited by pinching off the tops of the young shoots, which shade and crowd the bushes too much.

FLOWER DEPARTMENT.

Though so far the weather has not admitted of much planting out of tender things, with the incoming of June everything should be put out that it is intended to plant. All kinds of bedding stuff should be set out, reserving a little to fill vacancies, or places where some may die. Clean out the houses of all superfluous plants, which, if set in a well-prepared spot, are far better than cooped up under glass. Give an abundance of air at this season, both night and day; and neatly arrange, tie up and put in order such things as are left for the decoration in doors. Specimen plants should have attention and be allowed plenty of room; repot all that require it. Shade from hot sun.

AZALEAS are now making their new growth. Encourage it as much as possible by a greater warmth, frequent syringing, and occasional waterings with very weak liquid manure. If any require it, repot at once. Nip off the tops of all strong-growing shoots, and tie into shape crooked plants, which may, by attention, be made really ornamental. Look out for the thrip and red spider, and destroy in good season. Shade from the hot sun in the middle of the day.

CAMELLIAS will now have completed their growth and set their flower buds. Remove all to the open air by the last of the month, selecting a half shady situation. Syringe often, and do not water quite so liberally.

PELARGONIUMS are now in their prime, and will remain so until next month. Shade in the hottest part of the day, and water freely.

CINERARIAS will now begin to fade and the plants will require attention. Cut off the old flower stems, and remove to a cool house or frame, where

they can be kept from the hot sun and cold rains till the time for dividing them next month.

FUCHSIAS should be encouraged by a shift into larger pots.

CHRYSANTHEMUMS should have particular attention; repot young plants already established, and repot others. Plunge in the ground in an airy situation.

CHINESE PRIMROSES should be removed to a frame facing the north, where they can be sheltered from cold rains and hot sun. Divide and propagate for a young stock. Sow seeds now for next winter's stock.

ACHIMENES AND GLOXINIAS should be repotted.

CYCLAMENS should be planted out in a half shady place, or be set away in a shady situation in the open air.

ORANGE TREES should be repotted.

BEGONIAS, growing vigorously, will require another shift into larger pots.

CACTUSES, now beginning to bloom, should be more liberally watered.

FERNS should have attention. Repot and place in a shady house where they can have plenty of moisture.

HEATHS should be planted out in the open ground, or have a cool, airy situation facing the north.

WINTER-FLOWERING PLANTS should now be looked after, repotting the young stock, and preparing old specimens so as to get a good, stocky, well ripened growth.

MONTHLY CARNATIONS should be planted out in the open ground, and the young shoots layered for a fresh stock.

INSECTS are troublesome. Fumigate with tobacco for the green fly, and with sulphur for the red spider. Look over the plants often.

FLOWER GARDEN AND SHRUBBERY.

The cool weather has been highly favorable for the lawn, and a good thick sward is now ready for the mower, if not already cut. Roll well before mowing, and cut smooth and rake clean. Hoe, rake and roll the walks. Supply all vacancies in the borders with bedding plants or annuals.

ASTERS AND ANNUALS of various kinds, forwarded in frames, should now be planted in good prepared beds.

DAHLIAS may be planted out immediately, first well preparing the ground and manuring well.

GLADIOLUSES may yet be planted for late blooming.

NEAPOLITAN VIOLETS should now be taken up, divided and reset, shading a few days till well rooted.

BOX EDGING may now be planted or reset.

POLYANTHUSES should be divided and reset.

DAISIES should be divided and replanted.

TULIP AND HYACINTH bulbs should be taken up as soon as the foliage begins to decay.

BEDDING PLANTS of all kinds should be set out.

PANSIES, raised in frames or pots, should be planted out in a cool place.

ROSES should have attention. Look after the slug, and syringe with oil soap in good season to destroy them before the plants are injured.

AGRICULTURE AS AN ART.

AGRICULTURAL Education has been an engrossing topic of discussion within a few years, and has been brought before many of our state legislatures for more immediate and active encouragement, either by establishing agricultural colleges or otherwise furnishing the means of acquiring a better knowledge of the principles and practice of agricultural science. Michigan was the first we believe to establish an agricultural college at the capital of the state, which, though not so successful as its most sanguine friends expected, has maintained its standard of excellence, and been of good service in promoting the cause of agricultural art throughout the state. New York has also her agricultural college, located at Ovid, which will accommodate about three hundred students; connected with it is a farm of about three hundred acres. Under the favorable auspices on which it opens, it must be of signal service in educating the farmers' sons in all the higher branches of the science, and more speedily develop the resources of this great state. Maryland has, we believe, also taken measures to establish an agricultural school.

Our own state has also moved in the matter, and some measures have been taken to advance the interests of agricultural science by the medium of schools. Undoubtedly the wisdom and good judgment of our legislators will give all proper aid to a well-conceived and judicious plan to accomplish the objects in view. We are willing to confess we are not ourselves decided upon what should be the proper course of action; whether an agricultural college will meet the wants of our farmers. That it will diffuse the proper information, we have no doubt, but whether that information will be turned to a profitable account, is what we are the most fearful of. Still we hope whatever course is adopted it will be only with careful and due deliberation as to the final result.

Though our duties are not so much with the farm as with the garden, agriculture and horticulture are so near akin that

they cannot easily be separated ; the skill of the agriculturist is often required by many of our best gardeners, and if the gardener's skill is not often required by our farmers, it is because that skill is not properly appreciated, but supposed to be of that airy kind which exists only in the imagination.

The residences of many of our country gentlemen embrace lawn and field, with valuable stock, &c., and the requirements of a first-class gardener embrace a knowledge of mowing and reaping, the care of cattle, and other work. So too the successful farmer should have his orchard, and market garden, which needs a kind of experience not gained without practice. Thus, agriculture and horticulture are twin arts, requiring study, observation, and experience, and without them the farmer or gardener rises to no higher a condition than the mere laborer.

These remarks have been suggested by the perusal of an address, delivered by our well-known correspondent Prof. Russell, before the Essex Agricultural Society, at Danvers, last autumn. Like all his addresses upon similar subjects, it is full to repletion with valuable hints and useful suggestions. He shows us how much there is to observe and study around our own homes ; that we have only to profit by this observation and study to render us contented, and relieve all that is too often thought irksome to the farmer's life. We have not room for many extracts, but select the following as worthy of attentive perusal by all who are interested in rural life :—

AGRICULTURE AS AN ART.

Agriculture, considered in the light of an art, is no longer the confined and selfish consideration of how to feed and clothe a family, or the dwellers on a given area of the farm—mere labor of the most uncultivated kind can do as much ;—rather than this little and narrow view, it becomes a branch of national industry, and maintains relations to the prosperity of a country. The object is now to make the most returns from the outlay ; to enable the land from year to year to yield five-fold and ten-fold ; to swell the aggregate sum of a state's productive resources ; to invite capital to invest in its speculations ; to convert sterility into fruitfulness ; to anticipate

exigencies for future time; to leave the world better than it was found, and restore to the primal paradise the portions cursed by the ignorance and selfishness of man. You are familiar, gentlemen, with the name of Downing, who is considered in this country what Paxton is in England; men estimate him not so much by his knowledge and description of fruits and fruit trees, as by his endeavors to introduce correct ideas of landscape gardening; of the construction of elegant and commodious dwellings; and of a higher style of life in the pursuit of horticulture, to which science he was devoted. The art of agriculture does, in the grander modes, what landscape gardening does in the narrower; and there can be no reason why the most ordinary farm in Essex county should not borrow something from a higher style, to improve it and enhance its value. The time may be distant when in this country we shall be obliged to cultivate as carefully and scrupulously as is needful in older and more thickly settled countries, yet there can be no excuse for neglecting to obtain the greatest advantages from agriculture which lie in our power. I remember hearing an educated man, who managed a farm many years ago, say that he built him a new, fine barn, with many improvements, which at that time and place were considered merely whims and crotchets, because he could not afford to build a cheaper and meaner one, and his old one would not serve his purpose any longer; but I did not then catch the idea of the true economy which he had anticipated in the change. So agriculture as an art, holding its place high among other arts of civilized life, may not commend itself at once to every one, yet such fairs and annual exhibitions as this, attest to the increasing favor the idea is receiving in the community. We discover in the laws which govern the material world, that the circle and the spire pervade all developing objects. The same order which heaves planet and satellite around the central sun, arranges the growth of the stem and the position of the leaves of the smallest or most gigantic plant. The track which man progressively follows in his changes from epochs and seasons of his development, brings him back to some starting point in his course. The garden in the sacred Scriptures is spoken of as man's first residence,

and it is the garden which is his last and highest effort in civilized life. The farm can be a garden full of all manner of trees and herbs good for food and pleasure. Your most productive farming operations cease to wear the aspect of what would have been the case not many years ago. A well laid out and carefully cultivated garden ranks among the highest efforts of artistical skill. In it the useful, ornamental and essential all combine. In one department may be found the forest trees; in another the fruit trees; another the kitchen stuffs; another herbs and perhaps flowers. Every superfluous plant is there an unsightly weed, and is carefully extirpated. The first settlers in a new country find the forests usurping the soil; they must be removed to allow the sun's rays to reach the earth. To destroy is the first of the circle, but ere it ends harmoniously, to reproduce will be essential. An agricultural district, pursuing the art of husbandry, takes as much care to preserve a due balance of relations as does the most skilful gardener. It may be found essential to plant again the very products the axe a century before was brought into play to destroy. Nicety of operation in sowing and weeding; studying the character of the soil; adaptation of this or that manure to this or that field; will pay as well as the same means in the garden. We see this in what is called market gardening, and the most ready returns are from such farms as pursue the course which improved husbandry recommends. But no art can successfully be pursued without a science to aid and assist; to prompt the labor, and to point out the course.

AGRICULTURAL EDUCATION.

It were hardly to be expected in a country like ours, so young (and yet so old), but with so many vocations open to its inhabitants, seemingly more honorable and easier of pursuit than agriculture (but alas! too often the reverse), that the same careful solicitude for its advancement should have yet arisen here as abroad. The foresight and prospective wisdom of our greatest and most distinguished patriots have strongly recommended some action in our institutions of learning towards the enlightened pursuit of agriculture. But the precise method of inducing the study of farming as other studies

are sought, is a difficult question to solve, and may not be easily pointed out. I do not pretend to offer you, gentlemen, any plan of my own, from ignorance of what has been done, and from inability to devise such. Yet it appears to me evident that the first obstacle in our way is the too common idea that other pursuits are more honorable than that of the cultivation of the soil. There perhaps is a good deal, too, in the remark that the highest kinds of agriculture are expensive and will not pay; and that artistic and scientific farming will do well enough for the capitalist, who can afford to lose money if needful. I think the root of this mistake lies deeper than this surface view. Agricultural schools and colleges may be well enough, but they seem to have objectionable features. I have found among our academies and high schools, for instance, where there is any unusual amount of apparatus, that there generally is the most ignorance of the science it is intended to illustrate. The universal eagerness for office affects every branch of our social industry. The consequence is apt to be the appointment of incompetent teachers and professors; and the very richness and abundance of the apparatus of the establishment might affect injuriously the actual practical knowledge which is sought. The State of Massachusetts provides most generously four Normal Schools in which both sexes are taught "how to teach." From these seminaries issue from year to year intelligent young men and young women, the majority of which go into our agricultural towns and are employed in teaching the rudiments of an English education. Others assume important stations in schools of higher grade elsewhere. The Board of Education appropriates sums of money for familiar lectures on chemistry and other sciences. I have authority for saying, that it is its wish that the relation of the vegetable economy to agriculture should be taught those who are to teach again. I look with much expectation to the future for the diffusion of better ideas on this subject through our common schools. Much of my correspondence with friends, who are teachers, shows the tendency of the public mind in this direction.

BOTANY AS A STUDY.

We should then insist on studies among primary schools connected with the science of agriculture. At its very basis

lies the science of botany. No science else so refined, elegant, elevating to the mind; none so delicately suited to the feminine tastes. There is no reason why every boy and girl should not know about the very weeds, which look into their schoolhouse door, as much as about the multiplication table. Is not the structure, composition, uses, economical and artistical, of the wood that is consumed in the stove, as worthy an hour's lesson, as that of the rivers of countries scarcely trodden by man? In some towns the areas of schoolhouses are set with flowers and ornamental trees; this is well, provided the arrangement does not abridge the play-ground for athletic and health-inducing sports. But the science of botany needs no such botanical gardens for its apparatus; every dry reed-stalk left by the winter winds, every little weed, every green moss, are book and lesson and apparatus, to a mind healthy and properly instructed how to instruct. You will allow me to urge this point on your attention, gentlemen, for many of you are members of school committees I do not doubt. Would you wish to induce your sons to settle down near the old family hearth and pursue the noble labor of the farm, do all you can to make the farm the most attractive. See that the teachers you employ can teach something that is connected with the business you love and which you wish should be developed and elevated. It is a common law that every need has some supply near at hand; create that need, and the supply will follow. What money and pecuniary offers fail to effect, however liberal you may be in that direction, taste and conviction arising from education will do. Adorn your dwellings with flowers, and encourage your children to cultivate them. Many a useful natural bent in the young has been lost by injudicious and thoughtless levity. Believe that an hour is not lost which your wife, or your daughter, or your son, spends in the garden, among the flowers which they have learned to love. Labor is relieved of half its toil when smiled upon by the elegances of life. I have been no heedless witness of these facts, and the most industrious hands, and the most loving and motherly hearts, have I found among those who cultivated the tulip bed or nourished the rose bush in some corner of the farm yard, amidst discouragements

which would have appalled the sterner sex had they been suffered to exist where the corn and the potato patch stood. "The farmer's garden," says Elihu Burrit, "is the introduction to a large volume, of which every acre is a page, bearing the marks of his character. Viewed in this light, the gardens of New England are full of hopeful and instructive reading to those who consult their chronicles. They show that science, taste, and successful industry have been brought to bear upon agriculture. They mark the degree of mental culture and refinement to which the farmers of the country have attained." Let our common school teachers, I repeat, understand that they are expected to communicate such knowledge or go without employment, and my word for it, you will find them all apt and fit for the task.

OUR CULTURE SHOULD BE AMERICAN.

It is too common, in absence of other knowledge, to infer that what is known abroad of similar facts is identical with what we desire to know at home. But I think it may be concluded that every cultivated country has its own peculiar disorders, diseases and parasitical complaints. I would speak more particularly of plants, which are more familiar to me; and aver that many of the most insidious kinds of mildews, blights, brands and smuts, are structurally and typically our own. The naturalist who would investigate these may find them only analogous to foreign species, and from atmospheric conditions requiring different treatment. We need then an American system of science, based upon American facts in Nature.

Our culture too should be American, suited to our soils, climate, productions, to *our* fruits, grains, seeds, roots. I would by no means discourage experiments with approved foreign kinds, yet such experiments should be not hastily or widely adopted. Mr. David Landreth, an experienced seedsman, found among fifty-two specimens of turnips raised from seed imported by him, but *two* varieties worthy of perpetuation. In the subject of grass seeds, too, the knowledge of the actual species can only prevent disappointment in sections where they are unfitted to the soil or latitude. Mr. Ives has shown in your "Transactions" how coincident with the

soils are the varieties of apples and pears; what English kinds succeed, to what extent American varieties can be distributed through these United States. The potato rot presents a similar aspect, and in vain were the journals of Europe searched for the cause. Even the fungi described by the mycologists abroad did not occur on our own, and this insidious destroyer has baffled the most careful experiments to detect the reason of its presence. Is it a waste of time and study which has hitherto been expended to find the cause and remedy? Then equally wasteful the patient hours of the kind and generous physician, who has sought in vain for the reason and cure of pulmonary disease, or who has risked his own life to detect the seeds and germs of the cholera, which affrights and devastates nations. Equally so is the rot in the grape, which by the western vine-grower has been thought identical. But agriculture with its science must not borrow from abroad; it must build schools of American science, observation and research. Its soils are to be analyzed by its own chemists, its plants which grow upon them analyzed and specified by its own botanists, and the fields that are to be reaped should be sown with its own seeds. Is it too much to expect that from resources as great naturally as are to be found elsewhere, products as mighty and great can accrue?

CULTIVATION OF EVERGREENS.

BY EVELYN.

It is remarked by Selby, that, "independent of the value of the *Abietinæ* for the excellent timber they produce, most of the species, as ornamental objects alone, are well deserving of culture, no tribe of plants exhibiting greater individual beauty from their earliest age, either in point of symmetry or regularity of form; added to which they have the advantage of being evergreen, and in many cases attain a stature loftier than most of our deciduous trees. As ornamental objects, however, they require a treatment very different from that which they ought to receive, when grown in a mass, with a

view to timber or profit; as, instead of being planted near to each other or to other trees, and kept in pretty close contact for several years, in order to promote the early decay of the lower branches, whereby a clean trunk, devoid of knots, can alone be ensured, they should, from the earliest age, have ample room on every side, nor should any other plant be suffered to interfere with the growth of the lower branches, as upon the retention of these, which are so essential to their perfect pyramidal form, their beauty depend. The propagation of the *Abietinæ*, upon an extensive scale, can only be effected by seeds, which, however, are produced in abundance by most species, after they attain a certain age, by a succession of cones which are a longer or a shorter time in attaining maturity, in some kinds several years being required to ripen the seed contained, while in others this is effected in the course of a few months."

Emerson recommends the introduction into this country of several European pines, chiefly for the value of their timber. One of the most valuable of these is the Scotch pine (*Pinus sylvestris*), the only tree of the genus which is indigenous in Great Britain. It is abundant throughout Europe, but it has not been found in America, though from its great hardiness it would probably bear the severest of our winters. The ancient Caledonian forests were chiefly of this species of pine — if we may judge from the constant occurrence of pine trees found buried beneath the peat mosses, as well as from other remains, consisting of old, decayed roots upon many extensive wastes. The soil of New England, being chiefly composed of the *debris* of granitic rocks, is well adapted for all the hardy species of pine. Such was the soil of the native forests of Scotland, and it appears to be the soil most congenial to the nature of all pines. But it has been remarked that the pine will grow, and sometimes luxuriantly, upon ground of a different description, whose component parts are derived from rocks belonging to a more recent series, provided the subsoil be dry beneath.

Mr. Grigor observes, "the soil of the Highland forests is found of different qualities, which in some manner regulates the quality of the timber. The richest ground produces the

largest trees, consequently the timber is not so fine in grain as that grown on sand or poor gravel, but the quick grown trees appear as full of resin, as healthy, stand to as great an age, and are as red when cut up as those which grow on poorer soil. In general (he adds), the soil of the native Highland forests is superior to that in which firs are commonly planted throughout the low country."

The timber of the Scotch pine is esteemed by the English ship builders as superior to that of any of the American pines, and experiment has proved that it grows well in this country. Mr. Emerson remarks, that "several stocks are to be seen at the Botanic garden in Cambridge, where they have kept pace with the White pine, the Pitch pine, and the Hemlock." It strongly resembles our Pitch pine, but as it is a more beautiful tree it deserves planting for ornament; and as it produces better timber it deserves planting in forests.

In the cultivation of this tree, particular regard must be paid to the soil, as well as the situation. By properly attending to the soil we ensure its reaching its full dimensions, and by attending to the situation we may secure the best effects as a picturesque ornament. A very rich soil is not required, but the subsoil must be dry, for a wet subsoil injures the health of the trees. The plants must be raised from the seed of the best variety of the native Highland pine.

"The cones of the pine should be gathered in December or January, as the scales soon after the latter month begin to open and shed the seed, in consequence of the increasing heat and influence of the sun. When gathered and laid in a dry, cool place, they will, if required, keep good for a couple of years, but if the seed be wanted forthwith, they ought to be exposed to the rays of the sun till the scales expand and the seeds fall out. This, by many, is effected in a much quicker way by subjecting the cones to the process of kiln-drying; a mode however, which, unless conducted with the greatest care, is likely to prove highly injurious to the constitution of the future plants."

The time for sowing in Great Britain is from the end of March to the beginning of May—our season being about a month later,—probably any time in the month of May would

be proper. The seed must be planted in a light, free soil, and the plants are generally allowed to stand two seasons in the seed-bed, when they are transplanted in the nursery rows, and on the next year they are ready to be permanently planted out.

“There are proprietors who raise their own trees, and plant directly from the seed-bed. In this case the planting iron is the instrument usually employed for this purpose, and with it a skilful workman will insert from three to nearly four thousand plants in a day. But where transplanted trees of one or more years old are used, the slitting or T method with the common spade is preferable, as it affords a better bed and firmer receptacle for the enlarged roots; although a workman may not be able to insert nearly so many trees within the same time. In general, from four to five thousand plants are allowed to the imperial acre in making plantations consisting exclusively of Scottish pine.”

It is generally agreed that after the felling of a Pine forest, all that is necessary to secure its reproduction is to protect the ground a certain number of years, from sheep and other grazing animals, till the seedlings are beyond the reach of injury from their browsing. Here it is seldom necessary to thin out the plants by artificial means, as nature herself performs the operation as well as it is necessary to be done. But artificial plantations must not be thus left to nature, for as the trees are all of the same age and growth, they rise together more uniformly; they must therefore be regularly and judiciously thinned out in such a manner as to secure the greatest size and the greatest height; for on height and clearness of stem, as well as size, depends the value of pine timber.

There are several other pines that are worthy of cultivation here, both for ornament and for profit; and deserving of attention, not on account of their absolute superiority to our native trees, but because of the general truth, that by multiplying the species of any kind of tree in the land we preserve a greater quantity of standing timber than if we confine our attention to very few species. The owner of a plantation of Scotch pines or of Pinasters, or of any of our California pines,

would prize it more than an equally beautiful and valuable forest of indigenous trees, and a man's ambition will often tempt him to cover a barren tract with a plantation of foreign trees, though he would have allowed it to remain bare and waste before he could have been induced to plant it with the indigenous trees of our forests.

I shall, therefore, dwell a little longer upon the merits of the foreign pines, with the hope of calling attention to them both for use and for ornament. One of the most picturesque and interesting of the European species is the Pinaster or Cluster pine (*Pinus pinaster*). The Pinaster is a native of the southern countries of Europe—about the shores of the Mediterranean. It is also found in China, but not in the forests of the north of Europe. It thrives only in deep, sandy loam, and will perish when planted in a calcareous soil. It is evidently hardy, as proved by its growing for more than a century in England. It was introduced into that country by Gerard so early as 1596; but it is not valued for its timber, which is inferior to that of the Scotch pine. It is cultivated chiefly for its ornamental qualities. Like our Pitch pine, it bears with impunity the influence of the sea air, and though it prefers a deep, sandy loam, it grows vigorously upon tracts of pure sand. Its roots extend deeper into the ground than other pines, and this is probably the cause of their ability to thrive in sand, as they extend their roots below its shifting surface.

To raise the Pinaster successfully as an ornamental tree, it requires room and air on every side; it should not, therefore, be placed in mixed plantations, but reared by itself, and only in the kind of soil that is perfectly adapted to it. Its growth in a suitable soil is rapid and luxuriant, and it makes a beautiful tree. In England it is recommended to reserve "the Pinaster as a tree wherewith to shelter and adorn maritime sandy tracts, upon which it is known to flourish, and where few other trees can be made to succeed." This species of pine has been very successfully planted in France on barren tracts of sand near the coast, which for centuries had been mere deserts, and worthless for any agricultural purpose. The produce of these plantations, consisting chiefly of tar and resin, over

a large surface of the sandy downs along the southern coast of France, constitutes an important source of the wealth of the inhabitants.

“As an ornamental tree (says Loudon) the Pinaster holds the first rank, and no plantation, where pines are admissible, ought to be without it.”

Several pines from our Pacific coast have been gaining consideration since the settlement of California. One of the most remarkable of these is the Lamberts pine, the most gigantic specimen of the genus, and closely allied to our White pine. Indeed, without doubt, it is the same tree as modified by difference of soil and climate, to which it has been for countless ages exposed. The Heavy pine (*P. ponderosa*) is another Western pine, remarkable for the weight and proportional value of its timber. We shall in our next article treat of the cultivation of the fir and spruce, and of their comparative merits as ornamental trees.

GEOTHERMAL CULTIVATION.

BY M. NAUDIN.

3. TEMPORARY SHELTERS

In any geothermal system, we do not entirely reject the use of glazed coverings, but merely require that they should be moveable at pleasure; but what we prefer, to protect plants against the cold, are common materials made of wool, hair, cotton, or hemp, which are less expensive, more easy to move, less liable to accident, and altogether afford as good protection. A building of common light but solid wood work, a kind of cage, of which the pieces would easily take asunder and would last for a long time, would form the support for the covering material. In short, we only want a sort of tent to shelter the plants from cold.

The thickness of the walls of such a tent should depend on the situation and climate. At Paris, and in all countries where the winter is severe, it would be necessary to use coarse woollen materials of the most common description; indeed,

common rope mats would do to form the sides, reserving softer textures for the roofing. The most indispensable part is to cover the whole, down to the ground, with tarpaulin, which, whilst increasing the thickness of the sides and augmenting their effects, would also protect them from humidity. A netting of coarse cord, very open, much like that used to cover air balloons, should be interposed between any woolen covering and cloth, so as to regulate the ingress of the air, and add to the protection of the tent.

In southern latitudes where the winter, on an average, reckons but twelve to fifteen nights of frost, and these slight, the thickness of the walls of the tent could be lessened without injury, by substituting thinner mats or cloths than those I have named. The attention given to the construction of the tent must be regulated according to the power of resisting cold on the part of the plants which it covers. The slightest covering suffices for those which bear 1° or 2° of frost,—such as orange trees, camellias, and the greater portion of Cape and South Australian plants,—but for more tender plants the tent must be made thicker. For prolonged and severe winters there are still more effectual means to supply deficiency of covering, of which we will speak hereafter. One objection which suggests itself is this: that tents, which no doubt in time of frost will be hermetically closed, will have the disadvantage of keeping the plants in total darkness and cause them to run up blanched. We guarantee such will not be the result. In geothermal, as in every other kind of cultivation, all plants must have a period of rest, and that season is winter. Now plants do not blanch except when, over-stimulated by heat, they are made to grow in the midst of darkness or without a sufficiency of light. According to the geothermal system, plants will be left dry during winter, and only just the necessary heat given to prevent their suffering from cold; they will be in the state, in short, neither to throw out bud nor leaf, and therefore not liable either to be drawn up or to damp off. Besides, it must be borne in mind, that plants which have been from six to eight months in the open air, strengthened by the sun's rays, and not deluged by waterings and syringings, which are overdone by the present

style of cultivation, will bear far better a few days of darkness than the majority of greenhouse plants, which only receive sunlight passing through panes of glass, and often lessened by linen shades. The necessity of having to weaken the solar light for tropical plants, is, we are compelled to say, against nature, and is a palpable proof of some absurdity in our plan of treating them.

But although a few days of darkness would not be injurious to evergreens, it would be different were darkness to be continued for months, therefore tents should be so constructed as to open on the sunny side, and to permit the interior to be aired or lighted instantaneously, or closed when necessary. At intervals, or even the whole length of the tent (the south side only), the pieces of cloth could be made to roll up to the top, or to draw aside like curtains. However severe the winter in our latitudes, it rarely passes without some sunny days; sometimes even the mild weather will last a long time. It should, therefore, benefit the plants as much as possible. In the south, where there is so much sun in winter, and where it so rarely freezes by day, the tents should be wide open as long as the sun is above the horizon. The free entrance of air (though even cold) and bright light are very favorable to plants, provided, as we have just remarked, they have been well hardened during the preceding summer, and are well protected from damp.

The time when it becomes desirable to uncover or cover geothermal groups will, of course, depend on the general climate of the country, and the meteorological rule of the year. At Paris, winter protection would usually commence on the fifteenth of October; first partially, augmenting it gradually as the cold increases. The closing the tents should be perfect, even hermetical during hard frosts, and should the temperature of the interior approach freezing, the ground should be moderately heated, in order that the confined atmosphere of the tent might be sufficiently maintained above freezing point. This object would be best attained if, when the apparatus was put up, apertures allowing heat to escape were made in the underground heating pipes, to open and shut at pleasure. But it would be, perhaps, more simple

and easy to employ small portable stoves, especially adapted for this use. In the south such care would probably be only necessary with plants of quite a tropical nature.

Towards the close of winter, the plants should be gradually uncovered, that is, the tents should be more and more opened during the daytime, according as the weather is genial and the sun strong. It is needless to say that they should be closed at night should frost threaten.

At Paris it would be scarcely before the fifteenth to the thirtieth of April that the whole of the coverings could be removed; perhaps then it might be necessary to retain them during some days in May. In the south this may be effected three weeks or a month sooner, according to the situation and the weather. There, plants would require but three or four months' shelter, and even less were the geothermal cultivation employed on the sea-coast, viz., at Nice, Marseilles, Toulon, Hyères, and other places particularly favored by climate.

Of course, it is barely necessary to observe that the cloths, carpets, mats, and other coverings, during the time they are not in use, should be preserved from damp, as well as the wood-work which is used to support them.

4. HOW TO FORM GEOTHERMAL CLUMPS.

On account of plants demanding shelter during the winter season, geothermal plots can be only of limited extent, if made in a circular or elliptic form: as, in order that the tent intended to shelter them should be sufficiently firm, it ought not to be too wide, and in either direction only 8^m to 10^m can be allowed, should this form be particularly adhered to. However, this would not be the case were the geothermal space formed in the shape of a border 6 or 7 metres wide; this in most instances would be ample, and an indefinite length might be given to it without the tent being any way impaired in strength. For the same reason, also, these tents should never be very high, 6^m to 7^m being the maximum, unless the scaffolding and supports intended to carry the canvas are strengthened. This, however, since it increases considerably the labor of mounting and dismounting the covering, renders it an inconvenience. In most cases they should be lower,

not exceeding 4^m to 5^m, when the clumps are detached. It is, however, needless to say that when the geothermal space is placed against a high wall it will support the latter, and enable the roof to be carried higher.

The necessity of limiting the height in the way we have just mentioned will, consequently, curtail the amount of vegetation cultivated, though much less than would be at first supposed. For instance, if one examines the trees and shrubs which occupy our present greenhouse, it will be perceived that deducting the height of their tubs, there are very few which attain a height of 6 metres; the greater portion do not exceed 3 or at most 4 metres. Putting aside the plants whose excessive height would be an obstacle, there would still remain a considerable number for geothermal cultivation, without mentioning those thousand species of stemless or herbaceous plants which could, in an artificially heated soil, acquire their greatest possible development, without ever exceeding or even attaining 3 metres in height.

With a Parisian climate, all the shrubs from the Mediterranean may be geothermally cultivated. Orange, Citron and Lemon trees, with more vegetation of the same kind; the Camellia, Pomegranate, Myrtle, Lagerstrœmia, Oleander, Mastic tree, Filarias, and climbing Malvaceæ of the genera *Lavatera*, *Sida*, *Abutilon*, and *Hibiscus*; most kinds of *Yucca* and *Agave*; nearly all the Proteaceæ from New South Holland, from the Cape and from Chili; an immense number of shrubby Leguminous plants and Myrtaceæ from the same countries; quantities of Geraniaceæ from South Africa. To these may be added Pincenectitia, some Cycadeæ, and Palm trees of the genera *Chamædorea*, *Geonoma*, and *Rhapis*; but above all the *Chamaerops excelsa*, *Hystrix*, and *humilis*, with *Areca sapida*, which by their height of 3 to 4 metres, at most, and the fine spread of their heads remind one of tropical vegetation. There might be tried (but probably without success) those dwarf Palm trees of Northern India, such as *Wallichia* and *Phœnix farinifera* and *humilis*, which, although deprived of stems (or only with very short ones), are nevertheless suitable vegetation for the decoration of our gardens.

5. GEOTHERMAL CULTURE WITHOUT PROTECTION.

This style of geothermal cultivation consists merely in hastening the growth of certain exotic trees; which, although they resist the cold of winter under any given climate, yet do not find it sufficiently warm to fructify or blossom during the summer. The number of these trees is naturally very limited, but it might happen that their growth would be advantageously advanced by some days, or even weeks, particularly in the case of fruit trees. In some instances this causes the fruit to ripen when it would not do so without this assistance.

In the north of France there can be but little beyond the fig tree, the pistachio tree, and vine, and of the last such only as produce dessert grapes. Most years, few grapes ripen fit to eat to the north of the line which joins Nantes and Beauvais. Brittany, Normandy, Picardy, Artois, and Flanders, with other analogous climates, have scarcely any other grapes than hothouse, which cost much to erect and maintain. The fig tree will ripen pretty well on the coast of Brittany, yet, not a few miles off, or even at Paris. Now it appears probable that by heating the ground in an artificial manner during the months of April, May, and June, the growth of these trees might be advanced to such a degree that the varieties would mature before the middle of autumn.

It would be interesting to make the trial, but under any circumstances the experiments only must be tried in front of a wall with a south aspect, especially with fig trees, which require a certain amount of shelter in winter, in order to be safe against hard frosts.

POMOLOGICAL GOSSIP.

THE BUCKLAND SWEETWATER GRAPE.—This new grape, which we have before noticed, seems to have eclipsed all the new varieties, not excepting the Golden Hamburgh. At the great show of the Royal Horticultural Society, June 5th and 6th, it was exhibited in great perfection. The report states, that “among white grapes were three wonderfully fine

bunches of Buckland Sweetwater, from Mr. Hill. The three together weighed *six pounds four ounces*. They were stated to have been the produce of a graft put on the Black Hamburg in March, 1860. These formed one of the chief features of the fruit show." Golden Hamburg and Bowood Muscat were exhibited at the same time in fine order.

STRAWBERRIES AT THE SAME EXHIBITION.—The best single dish of strawberries exhibited came from Mr. Smith, who showed beautiful specimens of Sir C. Napier, one of the handsomest varieties, and every way a fine berry.

NEW GRAPES.—Among the new grapes sent to the Royal Horticultural Society's show were "good looking bunches of a white variety called Newell's Seedling; also Muscat Trouveron and Ingram's Black Prolific, the last a good early sort, which looks as if it would be very suitable for pot culture. It came from Mr. Standish, who showed a white kind called Citronelle."

LATE GRAPES.—A valuable collection of these were shown in February last, at one of the meetings of the Royal Horticultural Society. They had been grown in the great nursery in the Society's garden at Chiswick, and the fruit had been allowed to hang on the trees till the first week in February, when it was cut and placed in the fruit room. The berries of all the varieties were very much shrivelled, and some had almost assumed the appearance of raisins. They consisted of Barbarossa, quite plump and fresh, very juicy, but last season not highly flavored; Burchardt's Prince, a long tapering bunch, the berries much shrivelled, very rich and vinous; Blussard Noir, which, though an early grape, hangs well, and, when shrivelled, has tender juicy flesh, rich and rather vinous, but not equal to many others; Catalenesia Nera, a long tapering bunch, rather oval berries, thick skin and fine flesh, very rich and vinous, but not so piquant as Burchardt's Prince; Gros Panse, a nice grape, with fine crisp flesh, without much flavor; Morocco Prince, bunch long and tapering, berries oval, black and shrivelled, skin tough, flesh fine, juicy, very rich, vinous and piquant, a very excellent late grape; Muscat of Alexandria, very fine; Œillade precoce, a small bunch, slightly shrivelled, flesh very tender and juicy, of good flavor, but

neither rich nor vinous; Oldaker's St. Peter's, berries shrivelled, but apt to become mouldy and fall; skin thin, flesh tender, very rich and vinous; Prune d'Hérault, skin thick, flesh fine, neither juicy nor rich; Raisin de Calabre, a long tapering bunch, berries white, skin thin and tough, flesh tender, juicy and sweet, but neither rich nor vinous; Verdal, an early grape, which appears to hang remarkably well; berries shrivelled and in sound condition, the flesh very sweet, rich and vinous.

WILSON'S ALBANY STRAWBERRY.—Experience only renders us acquainted with the peculiar qualities of any fruit. Thus, in noticing the character of Wilson's Albany last year, we thought we enumerated all its merits; but this season has revealed one most important quality which we did not before notice. This is its exemption from attacks by the robins, which are now so troublesome to cherries and other fruits. There being no cherries this year, the robins have made sad work with the strawberry beds, destroying all the best berries, unless netted over, except the Wilson; these they have not even touched, and all who are troubled with robins have only to cultivate the Wilson, and they will have plenty of fruit. The robins show a cultivated taste in their selection—they dislike sour fruits.

ARBORICULTURAL NOTICES.

EVERGREENS THAT ARE HARDY AT FISHKILL, N. Y.—Mr. H. W. Sargent, of Fishkill, N. Y., whose collections of evergreen trees is one of the most extensive in the country, gives a flattering report of the success of many evergreen trees during the recent severe winter. Not only have many species been less injured than in previous winters, but the test of the season has enabled him to decide the character of several new sorts, which may be added to the list of hardy evergreens at Fishkill. We say Fishkill, because it must be remembered that this locality is more favorable than Massachusetts, and, though Mr. Sargent's experiments are some guide to success here, they cannot be relied upon with certainty.

We have already stated (p. 242) that notwithstanding the great injury to various trees and shrubs by the severe cold, the evergreens never wintered better. We assigned no reason, because our remarks were confined to another subject, neither can we, satisfactorily to ourselves, account for it. We are induced to believe it was owing to the steady cold weather, there being but two or three sudden changes the entire winter, while in ordinary years we have them very frequent, especially in January. We have seen rhododendrons completely browned in some winters, while in the last scarcely a leaf was injured, yet a few of the buds were destroyed. This would seem to support the theory that the cold destroyed the buds, as it did those of deciduous trees, while the same degree of cold, without changes, did not harm the foliage. It will be recollected that the winter through was rather cloudy and unpleasant.

We copy the remarks of Mr. Sargent, from the *Horticulturist*, respecting the several kinds of trees:—

“In my own neighborhood, as I have before mentioned, the effects of the winter have been much less severe than usual; nearly, in fact, all the evergreens which I have in former years reported as hardy, continue to deserve this reputation. In addition to the previous list, I would add, as perfectly uninjured by nineteen degrees below zero—

Picea amabilis, *nobilis*, *grandis*, and *Parsonsii* or *lasciocarpa*. In addition to the previously mentioned *Abies*, are *taxifolia*, *Jezoensis*, *Whittmaniana*, and *Pattonii*.

Cryptomeria japonica, both the common variety and *Lobbii*, seem to have become acclimatized, and are hardly touched.

So, also, *Cunninghamia sinensis*, which is perfectly green and beginning to grow.

Deodars, on the contrary, appear hopeless, except as bushes.

Cephalotaxus, both male and female, as well as *Thujopsis borealis* and *Cupressus Lawsoniana*, are as hardy as our common cedars. *Cupressus macrocarpa*, *Goveniana* and *Knightii* are, however, killed to the ground.

The Golden yew seems much hardier than the common English (*T. baccata*), though this stands well, and *Taxus adpressa*, very pretty and distinct, is equally hardy as either.

Among the *Thujae* (*Arbor Vitæ*), *Hoveyi* (Hovey's), *cristata* (Buist's seedling), *gigantea*, *glauca*, and *Craigiana* are perfectly green, and have been so all winter; and even *Podocarpus nubigena* hold its color and health perfectly well.

Washingtonias are somewhat browned, but wood and buds good.

Among the evergreen gains of the past year, I consider the most important, *Cupressus Lawsoniana*, *Taxus elegantissima*, *Podocarpus nubigena*, *Berberis japonica*, *Taxus monstrosa*, *Taxus microphylla*, *Pinus Jeffreyi*, *Pinus Bedsleyi*, *Pinus Sabiniæna*; and among the named rhododendrons are, *Azureum*, *Sir Charles Napier*, *Bicolor*, *Grandissimum*, *Concessum*, *Vandyke*, *Barclayanum*, *Delicatissimum*, *Coelestinum*, *Brayanum*, *Multimaculum*, *Achimedes*, *Magnificum*, *Prince Albert*, *Lord John Russell*, all of which are entirely uninjured and well set in flower beds."

NEW WEIGELIAS.—The facility with which this shrub is raised from seeds leads us to hope for as great a variety of colors as in the azalea. The Belgium collections already offer quite a number of new kinds, some of which, according to the descriptions, are very decided colors. *W. rosea* is well known as one of our best hardy shrubs, and the addition of other shades, darker and lighter, will render them among the finest and most effective ornaments of the garden.

LIBROCEDRUS TETRAGONA.—This is the name of a new coniferous tree recently added to English collections, and apparently hardy enough to stand our American winters, plants having been quite unharmed by the late cold weather in Great Britain. We copy the following account of it from the *Gardeners' Chronicle*:—

"It has been known, ever since the southwestern coast of South America was visited in the *Beagle* by Captain Fitzroy and Mr. Darwin, that an evergreen tree of extraordinary beauty and great economical value grows on the mountains there. The Spanish Americans call it *Alerse* or *Alerze*, a name given by European Spaniards to the larch, or the *Callitris quadrivalis* of Morocco, yielding a most durable kind of timber, on which account it was largely used in Grenada by the Moors in constructing palaces and edifices of great im-

portance. The tree now exists in this country, having been raised by Messrs. Veitch, with whom it has borne the last disastrous winter without the slightest injury, a circumstance that excites no surprise when we recollect that it was found by Lobb forming forests up to the snow line on the Cordillera, and that its neighbor Fitzroya has escaped in like manner. It proves to be a most useful ornamental plant in consequence of its perfectly erect, close-growing habit, the young plants being quite pyramidal: and it must certainly supplant in time such "fastigate" monsters as Irish yews and Swedish junipers—to say nothing of the singularly beautiful green of its foliage.

But it is not merely as a handsome object that *Libocedrus tetragona* demands an extended notice. It is found to yield timber of the utmost value.

This beautiful tree reaches one hundred and twenty, and often more, feet in height; is very luxuriant in its foliage, with thick branches, open, and ascendant; is found in great abundance in the provinces of the south, on the hills verging from Valdiva to Chiloe; grows very straight, of great height, and of such circumference that five, six, and even seven men are required to measure round it. It is of the most durable quality, having been worked for ages, and stands the greatest test of the atmosphere, trunks of this tree having been met with buried since the year of the great rising of the Indians, in 1599, and these trunks have been worked up as easily as newly cut timber, only being much heavier. In the country the trunks consist of three parts—the first, the liber, a filamentous layer beneath the bark, makes an excellent oakum, imperishable in water, and used by the natives for caulking their 'piraguas' (large species of canoe); the second, or bark, is not much valued, but the third is of great value for all building purposes and plankings, for floorings and decks of vessels, besides masts and pillars. Working this tree on the mountains is a most laborious business, and occupies during the summer about six thousand people. The export runs from three hundred to four hundred thousand planks; it most abounds in Lenghi, Carinel, Mellipulli, Cohuin, La Boca, &c. In the department of Calbuco the planks are so common

that they serve as money in the currency, and are received as such in all warehouses, and they have even given a name to the measurement of time. For example, 'Descansada' means an hour, and 'Cantatum' means a quarter of an hour, arising from the Indians in their journeys carrying the planks, resting every hour, 'Descansada,' and changing shoulders every quarter of an hour, called 'Cantatum.' These words are commonly used in that province to describe any distance. Throughout all Indian countries distance is described by an Indian's run or march."

SALIX TRICOLOR.—This is a very beautiful variegated-leaved willow, forming a most ornamental object when grafted as a standard. Its beautiful white, yellowish and green blotched leaves are very conspicuous and ornamental. With the *S. rosmarnifolia* and the Kilmarnock, it is one of the finest acquisitions to this beautiful class of trees.

ORNAMENTAL PLANTS WITH VARIEGATED FOLIAGE.

SINCE the attention of cultivators and lovers of handsome foliaged plants has been directed to their culture, quite a large number have been brought to notice, both hardy and tender, embracing nearly all our well-known hardy garden plants which are now represented with variegated foliage. By careful selection from seed beds and propagating the sports which so often appear, these have been produced, and our cultivators need only have an observing eye, when looking over their seed beds, to add to the already extended list of ornamental objects.

It would be interesting to have a list of all the strictly **HARDY** sorts, which are of easy cultivation, that they might be better known and introduced to our collections, but as no attempts have been made to accomplish this, that we are aware of, we improve the opportunity to copy from our foreign journals such information as will lead to such a result. We have already ourselves done something in this way, and hope to present a very full list of such as we have tried

another year. In the mean time we give the names of the principal variegated foliaged plants, in English collections, both hardy and half hardy:—

HARDY VARIETIES.

- | | |
|--|---|
| <i>A'rabis grandiflora</i> fol. var. | <i>Lilium candidum</i> fol. stricta. |
| <i>Achillea millefolium</i> fol. var. | <i>Lychnis viscaria</i> fol. var. |
| <i>Aconitum napellus</i> fol. var. | <i>Melissa grandiflora</i> fol. var. |
| <i>Alyssum saxatile</i> fol. var. | — officinalis fol. var. |
| <i>Ajuga reptans</i> fol. var. | <i>Mentha heterophylla</i> fol. var. |
| <i>A'rabis alpina</i> fol. var. | — rotundifolia fol. var. |
| <i>Artemisia vulgaris</i> fol. var. | <i>Phalaris arundinacea</i> fol. var. |
| <i>A'rurum maculatum</i> . | <i>Phlox elegantissima</i> fol. var. |
| <i>Astrantia minor</i> fol. var. | — saueolens fol. var. |
| <i>Bellis perennis</i> fol. var. | <i>Plantago lanceolata</i> fol. var. |
| <i>Betonica officinalis</i> fol. var. | — major fol. maculata. |
| <i>Chelidonium majus</i> fol. var. | — media fol. maculata. |
| <i>Cineraria maritima</i> fol. argentea. | <i>Polemonium caeruleum</i> fol. var. |
| <i>Colchicum autumnale</i> , fol. var. | <i>Potentilla anserina</i> fol. var. |
| <i>Comarum paluster</i> , fol. var. | <i>Prunella vulgaris</i> fol. var. |
| <i>Convallaria majalis</i> fol. var. | <i>Pulmonaria officinalis</i> fol. macu- |
| — — fol. alba marginata. | lata. |
| — polygonata fol. var. | — siberica fol. var. |
| <i>Dactylis glomerata</i> fol. var. | <i>Ranunculus repens</i> fol. var. |
| <i>Dianthus barbata</i> fol. var. | <i>Rudbeckia hirta</i> fol. var. |
| <i>Erythronium deus canis</i> . | — lasciniata fol. var. |
| <i>Elymus arenarius glaucus</i> . | <i>Rumex acetosa</i> fol. var. (Sorrel.) |
| <i>Farfugium grande</i> . | <i>Rumex sanguinea</i> fol. var. (Dock.) |
| <i>Festuca glauca</i> . | <i>Ruta graveolens</i> fol. var. (Rue.) |
| <i>Fritillaria imperialis</i> fol. var. | <i>Salvia officinalis</i> fol. var. (Sage.) |
| <i>Funkia alba marginata</i> . | — — fol. var. tricolor. |
| — japonica cordata fol. var. | <i>Saponaria officinalis</i> fol. var. |
| — ovata fol. var. | <i>Saxifraga granulata</i> fol. var. |
| — undulata fol. var. | <i>Sedum acre</i> fol. var. |
| <i>Geranium pratense</i> fol. var. | <i>Silidago ambigua</i> fol. var. |
| <i>Glechoma hederacea</i> fol. var. alba | <i>Spiræa almæria</i> fol. var. |
| maculata. | — — fol. var. argentea. |
| — — fol. var. aurea maculata. | — — fol. var. picta. |
| — — fol. rubra. | <i>Symphitum officinale</i> fol. var. alba |
| <i>Heliánthus vulgaris</i> fol. var. | superba. |
| <i>Hemerocallis fulva</i> fol. var. | — — fol. var. maculata. |
| <i>Humulus lupulus</i> fol. var. | — — fol. var. sulphurea. |
| <i>Iberis</i> fol. var. | <i>Tanacetum vulgaris</i> fol. var. |
| <i>Fris pseudacornis</i> fol. var. | <i>Trifolium repens</i> fol. var. |
| <i>Lamium album</i> fol. var. | <i>Tussilago farfara</i> fol. var. |
| <i>Lilium candidum</i> fol. var. | <i>Vinca minor</i> fol. var. argentea. |

<i>Vinca minor</i> fol. var. aurea.	<i>Verónica</i> gentianoides fol. var.
<i>Viola odorata</i> fol. var.	— spicata fol. var.
<i>Vitis hederacea</i> fol. var.	— chamædryis fol. var.

HALF HARDY VARIETIES.

<i>Agapánthus umbellatus</i> fol. var.*	<i>Hydránga japónica</i> fol. var. aúrea superba.
<i>Agave americana</i> fol. var.*	<i>Jasminum azóricum</i> fol. var.*
— — fol. striata.*	<i>Koniga</i> fol. var.*
<i>Agératum cælestinum</i> fol. var.	<i>Linaria cymbalaria</i> fol. var.
<i>Arundo donax vérsicolor</i> .*	<i>Myrtus communis</i> fol. var.*
<i>Cánna indica</i> fol. var.*	<i>Nerium oleander</i> , fol. var.*
— — zebrina.*	<i>Salvia fulgens</i> fol. var.*
<i>Centaurea candidissima</i> .*	<i>Saxifraga sarmentosa</i> .
<i>Cobæa scândens</i> fol. var.*	— umbrósa fol. var.
<i>Dahlia</i> , fol. var.*	<i>Senecio jacobæa</i> fol. var.*
<i>Fuchsia grácilis</i> fol. var.*	<i>Sempervivum arboreum</i> fol. var.*
<i>Hedera Hibernica</i> fol. aurea.	<i>Smilax</i> fol. picta.
— — fol. argentea.	<i>Solanum jasminoides</i> fol. var.
— latifolia maculata.	<i>Tritoma Burchelli</i> fol. var.
— elegantissima tricolor.	<i>Verbena Defiance</i> fol. var.*
— fol. var. sulphurea.	<i>Verónica Andersóni</i> fol. var.*
<i>Heliotropium aucubæfolium</i> fol. var.	— — maculata.*
<i>Hydránga</i> fol. elegantissima.	<i>Vinca major</i> fol. var.
— fol. var. aúrea.	<i>Yucca aloëfolia</i> fol. var.*
— japónica fol. var.	— — fol. var. rubra.*
— — fol. var. aúrea.	— filamentosa fol. var.

Those marked thus * require a greenhouse in winter. The others will keep well in a frame or cool cellar.

This very complete list, though not embracing near all, has been made from one of the most extensive collections in England, gathered from all sources, and at much expense, and some are quite new. We give it as a reference hereafter. Probably not one quarter of them can be found in American collections, and it will be some time before they will all be introduced.

All in the hardy list are of easy culture, and generally will grow in any good garden soil; the half hardy and tender kinds flourish well planted out in the open ground in summer, but require to be lifted and have the shelter of a frame in winter. The more tender sorts require to be kept in the greenhouse.

We know of nothing that adds more to the interest of the garden than these many-hued plants; especially in early spring before flowers are abundant, and in autumn when they are gone, the masses of variegated foliage have a charming pictorial effect, while at all times they contrast prettily with the deep green of other plants. We hope these hints will induce our amateurs to devote more attention to ornamental foliaged plants.

PERENNIAL HERBACEOUS PLANTS.

FROM THE FLORIST.

IN the passion for bedding plants, now so general, there is a tendency to overlook the well-known, long-tried, and legitimate tenants of the garden, which, though less brilliant perhaps, make up in their sustained bloom—and above all their perennial growth—for the ephemeral show of the former. We have before, we do now, admit all the claims of the Verbena, the Lantana, the Petunia, and other well-known bedders to our attention, but at the same time we must acknowledge that if their importance has not been overlooked, other quite as valuable things have been greatly neglected. What the real lover of a good garden wants is a continued array of ornamental flowers the season through—early and late—but in this the professed bedders fall short of our wants. From July until September these are beautiful, nay, even rich and gorgeous; but, alas! what shall we have till the former month opens: not those, certainly, for we cannot safely put them out till the 20th of May, and they hardly get established till July. Hence all May and June our borders are almost as bare of flowers as in winter. It is then if at no other time that the perennials are so interesting, so attractive, so beautiful. From the first genial day in April, when the violet unfolds its humble but perfumed flowers, to the last of June, when the broad-petalled primrose spreads its golden corols to the bright sun, the well-stocked border is never deficient of flowers—and that, too, with no other labor than removing the

slight protection which is thrown around them in autumn. There is no work of taking up and potting—nursing through the winter and planting out again in spring—but, year in and year out, they go flowering on, growing stronger and stronger, blooming more profusely with age, forming masses of flowers which the loving amateur never tires to look upon. A division and renewal of the planting every three or four years is all that they require for so large a display of bloom.

Believing these views will be appreciated by all amateur cultivators, we copy the following account of some of the more prominent plants adapted to the flower garden, especially for early bloom, before the so-called bedders begin to be ornamental. Three or four of them may not be quite hardy enough for our rough climate, but without them there are enough to please the demands of most amateurs:—

The following descriptive list is offered as a “remembrancer,” at least as regards the flower garden, bringing into view, as I trust it may, a series of plants whose average character, color, &c., well adapt them for producing a gay effect previous to the bedding out of more permanent varieties. Amongst them will be found some whose merits for the object described are not generally known or appreciated. As the greater part of them are of strictly perennial character, it should be remembered by those who grow them that all the earlier flowering kinds should be succeeded by later blooming plants of similar colors, &c., where desired, and also that the amount of bloom and general effect will be just in proportion to the amount of the previous year’s growth. Therefore, as a general rule, it is important to secure vigorous growth one year previous to that in which a fine display is desired. The exception to this rule will, of course, depend upon the opportunity of procuring strong plants the previous autumn, and the number equal to the amount of bloom sought for. Let no plant, however, be condemned until its average excellences and capabilities have been correctly ascertained, and the most favorable conditions for producing such, carried out.

1. *Alyssum saxatile*. Very ornamental in spring; grows

from nine to twelve inches high, compact in growth, with hoary leaves, and conspicuous densely-flowered racemes of bright yellow blossoms, produced from the latter end of April until June.

2. *Linum flavum*. Equally dwarf, compact, and ornamental as the preceding, producing racemes of comparatively large, bright yellow, compact, salver-shaped blossoms at the same period.

3. *Viola palmensis*, (syn. *V. stricta*.) A neat dwarf plant, which bears a profusion of bluish lilac violet-like flowers during April and May.

4. *Iberis sempervirens*, (Evergreen Candytuft.) An ornamental, dwarf, compact and densely-branched evergreen spring flowering plant, six to nine inches high, forming *en masse* quite a carpet of snow white blossoms upon a dark green ground, and forming a conspicuous object in the shape of single groups in flower borders, or the foreground of shrubberies, or in relieving the darker background of massive rockwork.

5. *Iberis saxatilis*; 6. *Iberis cordifolia*. Of smaller habit than *I. sempervirens*, being a very neat, compact evergreen species, four to six inches high, and producing an equally fine effect as the foregoing species, and, with it, blooming from the last week in April until June.

7. *Scilla campanulata alba*. An ornamental, early, spring-flowering bulbous plant, twelve to sixteen inches high, of slender, upright, hyacinth-like habit, with dark green, flaccid, lanceolate leaves, and numerous erect flower scapes, bearing a profusion of conspicuous snow-white, open-lobed, bell-shaped blossoms. A beautiful plant for early effect in small or large groups throughout the borders, or in the foreground of select shrubberies, or in prominent positions, *en masse*, of the flower garden.

8. *Scilla nutans*. A neat, early, spring-flowering, bulbous-rooted plant, twelve inches high, with numerous terminal spikes of rich dark blue, pendent, bell-shaped, hyacinth-like flowers in April and May, forming a conspicuous object for small groups or parterres.

9. *Cheiranthus alpinus* (syn. *Erysimum diffusum*). A gay early-flowering biennial plant, of dwarf compact habit, six

inches high, with narrow leaves and short stems, terminating with massive corymb-like clusters of remarkably bright brimstone-colored flowers, forming a conspicuous and enlivening object for small groups in April and May.

10. *Veronica teucrium*; 11. *Veronica patens*; 12. *Veronica nana*. These may be classed amongst the most desirable species of this genus for early summer effect in small beds or groups in flower borders. They are ornamental perennial herbaceous plants, the first named about eighteen inches high, and the latter from nine to twelve inches, of a compact bushy habit, producing numerous terminal and axillary spikes of very rich ultramarine blue blossoms in May and June.

13. *Mimulus rivularis pardinus*. A rare and highly ornamental spring and summer flowering perennial herbaceous plant, six to nine inches high, perfectly hardy, distinguished from most other allied varieties by a less luxuriant growth, and producing, when grown in fully exposed situations, and in soils not over stimulated by vegetable matter, a profusion of comparatively large golden yellow flowers, one and a half to two inches wide, each picturesquely marked with five remarkably rich crimson cloud-like blotches on the marginal lobes. Well adapted for early summer effect in full south aspects, and for a successive bloom on north or northeast borders.

14. *Cheiranthus Marshalli*. A highly interesting spring-flowering biennial plant, of compact habit, with neat dark-green leaves, and terminal racemes of brilliant orange, close lobed, salver-like blossoms, each nearly three quarters of an inch wide, and imparting a delightful odor. Well adapted for distant effect in single groups or small parterres.

15. *Scilla campanulata intermedia*. This plant is similar in its growth to *S. campanulata alba* (No. 8), as a perennial spring flowering, herbaceous, bulbous-rooted plant, twelve inches high, with conspicuous spikes of porcelain blue, open bell-shaped flowers, suitable for varied effect among early blooming objects.

16. *Narcissus tenuifolia* (*Corbularia tenuifolia*); 17. *Narcissus bulbocodium* (*C. bulbocodium*). Two of the most beautiful species of their respective section and type of growth

—the second named kind well known to all lovers of spring flowers as the “Hoop Petticoat Narcissus.” They are remarkably neat, dwarf, and compact, spring-flowering bulbous-rooted plants, four to six inches high, with slender dark-green rush-like leaves, and comparatively large and conspicuously beautiful orange yellow Narcissus-like flowers, differing from many other species in having a much smaller outer frill-like belt, from which, at a distance, the blossoms appear like rich golden flower tubes gracefully reclining from the centre of the grass-like foliage, with which they are finely contrasted. The first named species is readily distinguished by its erect and more slender herbage.

18. *Veronica caucasica*. A neat dwarf spring-flowering herbaceous plant, six to nine inches high, with numerous racemes or spikes of pale azure-blue blossoms from the second week in May until the middle of June.

19. *Anemone Scarlet Soldier*; 20. *Anemone Josephine*. Highly ornamental compact perennial varieties, six inches high, with brilliant double scarlet flowers, nearly two inches wide, yielding a successive bloom throughout the summer season by repeated plantings about ten weeks previous to the required periods of display.

21. *Campanula rostita*? (*C. hostis*, of nurseries). A remarkably neat, dwarf, compact, summer-flowering, hardy perennial herbaceous plant, twelve inches high, with smooth narrow lanceolate dark-green leaves, and numerous terminal spike-like racemes of conspicuously rich purplish-blue bell-shaped flowers, in July and August. This valuable species is perhaps the best of its extensive genus for effect, *en masse*, during its season.

22. *Campanula rotundifolia alba*. Much similar in habit and growth to the preceding species, but somewhat taller, producing at the same period many terminal graceful spike-like racemes of pendant white bell-shaped flowers, upon slender upright stems twelve to sixteen inches high.

23. *Genista tinctoria pleno*. A very neat and ornamental hardy perennial, half-shrubby plant, of dwarf compact habit, with small dark-green narrow leaves, and numerous terminal branch-like racemes or spikes of golden-yellow blossoms, from July until September.

24. *Campanula carpatica*. A hardy summer and autumn flowering perennial herbaceous plant, of neat, erect, compact bushy habit, twelve inches high, producing a profusion of comparatively large expanded blue bell-shaped flowers, upwards of an inch wide, from July until October.

25. *Campanula carpatica nivea*. Like the foregoing species, a dwarf and compact summer and autumn flowering variety, producing a profusion of comparatively large and conspicuous snow-white bell-shaped blossoms, nearly one and a half inches wide, from July until September. A late bloom for early autumnal effect may be obtained from the two last ornamental plants by cutting off about one third or more in length of the advancing flower stems about the latter end of June or early in July.

26. *Oenothera macrocarpa*. A neat and hardy ornamental herbaceous plant, with decumbent or partially trailing stems, six to nine inches high; lanceolate leaves and numerous remarkably large close lobed salver-shaped yellow blossoms, four to six inches wide.

27. *Campanula pumila*. A diminutive and interesting small dwarf hardy summer-flowering perennial plant, from two to four inches high, with slender erect stems, each tipped with one or more conspicuously clear blue pendent bell-shaped flowers, in July and August. Well adapted for small groups or parterres, or for marginal effect in larger beds; preferring a situation partially screened from the hot sunlight.

28. *Campanula pumila alba*. Equally neat and interesting in habit as the preceding species, the tiny slender stems tipped with elegant clear white drooping bell-shaped flowers, forming a pleasing and conspicuous contrast to the blue-colored one.

29. *Calceolaria sulphurea splendens*. A highly ornamental and desirable hardy perennial, summer-flowering, herbaceous plant, of remarkably dwarf and compact habit. This very interesting variety forms its entire growth upon the ground, its central stems not rising more than six to nine inches, yet so vigorous and free in its herbage as to attain occasionally a diameter of twelve and eighteen inches. Its ample green lanceolate leaves and numerous flower scapes, crowned with finely formed and comparatively large golden-yellow pouch-

shaped blossoms, seldom attaining an elevation beyond twelve to sixteen inches, form a very beautiful object, either as single groups or in small parterres. Its short and densely-leaved tufted growth renders it slow to increase.

THE CULTIVATION OF NATIVE FLOWERS.

BY MRS. ISAAC CLEMENT, MECHANICVILLE, N. Y.

21. *CEANOTHUS AMERICANUS*, Jersey Tea. Found here on dry ground, both in sun and shade; a very handsome, low-growing deciduous shrub, with crowded panicles of small white flowers and plenty of handsome leaves; difficult to transplant from the root growing so deep in the ground; it does well to plant the seeds where you want it to grow. May to July.

22. *KALMIA ANGUSTIFOLIA*, Sheep Laurel. The only kind found here, an evergreen shrub two feet and over in height; new growth of leaves quite red at first; can be made to grow in any situation, as I have found it in bloom in places covered with water and shaded, also in dry sand in open sunshine; flowers in clusters, red or pink in color. June and July.

23. *SISYRINCHIUM ANCEPS*, Blue-eyed Grass. Generally found in low meadow lands, but will grow in any situation; a hardy perennial with grass-like leaves, belonging to the Iris tribe, and the roots will part in the same manner. I formed the first edging with it I ever saw, for which it is very handsome; the only fault is, it increases in width too fast, making it necessary to divide it often. It is a perfect mass of flowers while they last, but if not wanted for seed should be cut off pretty low down, when the grass-like foliage remains handsome through the season. June.

24. *LOBELIA CARDINALIS*, Scarlet Cardinal Flower. The gayest of all the gay flowers; to be searched for along small streams and in low grounds; a plant I have had occasion to search for often, as I could never keep the same plant long; I have found it in dense shade, but generally along streams with the roots under water. I think the seed is generally false,

as I never obtained but one plant of the scarlet from seed, and that was self-sown. It is said by some writer that the old flower-stalks must be taken out or it will decay; others say it must be divided often; whatever will keep it is well worth trying, for it will repay the care by its beautiful flowers which grow in a long raceme; root fibrous; easily transplanted. July and August.

25. *LOBELIA SIPHILITICA*, Blue Cardinal Flower. Not quite so impatient of cultivation as the last, neither is it quite so handsome, yet well worth cultivation, but it must be divided often, as the flower stems grow out from the under side of the root in the same manner as the Phlox and Dahlia, and if they should be left long in one place the centre of the root will decay; found in the same soil as the last, but will flourish anywhere; spike of flowers not so long as in *cardinalis*, but more robust; leaves grow among the flowers, which detracts from its beauty. July and August.

26. *LINARIA VULGARIS*, Snapdragon. A handsome plant, both leaves and flowers; quite too common in some places; a perfect pest to the farmer, which we will consign to the place prepared for root creepers. Flowers yellow and orange, in a short spike, which keeps increasing in length and blossoming throughout the season.

LILLIPUTIAN OR BOUQUET DAHLIAS.

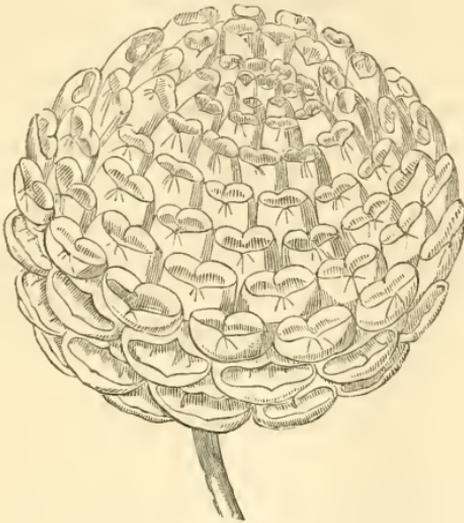
BY THE EDITOR.

THE Dahlia has been wonderfully improved since its first introduction from Mexico. Probably no flower has been so extensively grown during the last twenty-five years; certainly none has received the same attention from florists. Hundreds of new varieties were yearly produced, and these were the selections of thousands or millions of plants. But as the flowers have progressed towards perfection, the difficulty of raising new and distinct sorts has been increased, and a variety must now be a very superior bloom to entitle it to a name.

For a long time all the varieties were self-colored; then

came the imperfectly edged or tipped sorts, and afterwards the striped and mottled flowers. These were changes in color, without any material difference in growth; but even here the skill of the cultivator triumphed, and a class of Dwarf or Bedding Dahlias was produced.

And now, more distinct still, we have the *LILLIPUTS*, with a slender growth and miniature flowers, entirely new, novel, and highly ornamental, with a stature but little exceeding some of our taller annuals, and blooms but little larger than the *Ranunculus*, and of a perfection of form quite equal to



19. LILLIPUTIAN OR BOUQUET DAHLIA.

the finest of the large-blooming kinds, as our engraving represents, (FIG. 19.)

These acquisitions are, we believe, of German origin—accidental, we presume, and perpetuated by the skill of German cultivators. They are now attracting much attention among English cultivators, and, for small gardens and decorative purposes, are most admirably adapted, not only by their neat and dwarf habit, but from the symmetrical shape of their flowers and their great profusion of bloom. They have none of the coarse habit peculiar to the old varieties. The earlier sorts were of simple colors, but those of recent growth have all the variety and beauty of the finest prize Dahlias. They possess also the excellent property of blooming when quite

small, so that plants set out in July will display their flowers in abundance throughout the autumn.

Possessing so many excellent qualities, they must soon become favorites of the garden, especially where space will not allow the introduction of the old kinds. They occupy but little more space than the German aster, and, with it, form handsome groups for the flower garden.

The following are some of the leading varieties:—

Colibri, nankeen, with brownish earmine tints, very small.

Cupid, yellow, changing to buff.

Little Elizabeth, rosy lilac, tinted with reddish purple.

Little Helene, rosy lilac, tipped with purple, very compact.

Little Philippe, salmon tinted blush, edged with rosy pink.

Child of Faith, incurved, creamy white, neat habit.

Child of Innocence, lilac, shaded white, quilled, globular.

Honeycomb, violet purple crimson.

Gold Pleasant, yellow, tipped with red shaded into orange.

Little Julius, bright earmine red, distinct.

Little Pet, yellow, with salmon centre, compact, dwarf habit.

Novelty, crimson, sometimes edged with buff.

FLORICULTURAL NOTICES.

PELARGONIUMS AT THE LONDON EXHIBITIONS OF 1861.—The Pelargoniums continue to hold a prominent place among plants at the spring exhibitions in London, as indeed they well may, for few flowers possess more real merit than these. In the present perfection of the many varieties nothing so well repays the most careful cultivator; and when treated as moderate specimens, full of bloom, there is nothing richer or more effectively beautiful. Our own cultivators do not sufficiently appreciate the character of the Pelargonium, either as a greenhouse or exhibition plant. We copy the following from the report of the exhibition at the Regent's Park Show, May 22d, as showing what were the prominent kinds displayed:

Pelargoniums, especially the two first collections, both from

nurserymen and private growers, were excellent. Leviathan, Fairest of the Fair, Vestal, Candidate, Picnic, Etna, Admirable, and Rose Celestial, in Mr. Turner's group, which was placed first, were beautifully grown and well flowered. Messrs. Dobson had Governor General, Fairest of the Fair, Una, Viola, Rosalie, Rose Celestial, Richard Benyon, Symmetry, Eugene Duval, Fair Helen, Sanspareil, and Admirable. In the amateurs' class, Mr. Foster sent, among others, Rose Celestial, Fair Helen, Flora, Sanspareil, Sir Colin Campbell, Fairest of the Fair, Saracen, and Vesta. Mr. Bailey, Sharde- loes, contributed extremely well grown plants, dwarf and well flowered, both of ordinary and fancy kinds; their only fault was that the blossoms were rather small. Of fancy varieties, those from Mr. Turner, to which the first prize was awarded, were also all that could be desired. Messrs. Dobson and Fraser likewise showed good collections. In the different groups, Cloth of Silver, Acme, Madame Rougiere, Circle, formosissimum, Princess Royal, Attraction, and Lady of the Lake were conspicuous.

NEW VEBBENAS.—In the multitude of new varieties it would be surprising if all were decided improvements; this is not to be expected. Still, it would be better for the public if more caution was exercised in bringing out these new ones, so that such as are so slight an improvement as not to be easily recognized, should be rejected, and only the decided sorts retained. It would be more credit to the grower to send out six really fine varieties, than twenty, only six of which should prove desirable. Amateurs would be saving not only money, but, what is of greater consideration, valuable time, room, and disappointment. Every real lover of the Verbena cannot withstand the temptation to purchase the new sorts, and it is too bad that he should be at the trouble of cultivating all, for the sake of winnowing the wheat from the chaff. The following are some of the new sorts which are really extra fine:—

Fire Fly, intense fiery scarlet, with small yellow eye.

Striata perfecta, very distinctly striped, white and lavender.

Mad. Ruiston, very dark, with velvety purple.

Diana, rosy crimson, large and clear white eye.

Aurora, majenta, large square white eye.

Miss Dolby, cherry, yellow centre, large truss.

Victor, blue, large white eye, fine.

Thetis, dark rich purple, clear white eye, superb.

Morning Star, cherry rose, yellow eye.

Conqueror, cherry, dark band, white eye.

Great Western, ruby crimson, square white eye, fine.

Madame Gouaud, crimson, ribboned with blue, very distinct and fine.

Baron Renfrew, purple, dark violet centre, superb.

NEW PETUNIAS.—Great improvement has been made in the Petunia. The now well-known Inimitable was the first of a series of blotched and spotted varieties, which are more distinct than that, and much more beautiful. Of these, some have been introduced and others raised by our own amateurs and gardeners. Mr. Trautman of Roxbury has raised almost a fac-simile of *Inimitabilis fl. pleno*, which was so much of a wonder, at the London show in May, as to obtain a special prize. Mr. Dooge, gardener to C. Copeland of Wyoming, has raised two, which are very fine.

The double varieties recently received are very fine flowers, and the objection made to the old double sorts does not apply to the new kinds. Some are as large as roses, and quite as double.

Among the most conspicuous of new foreign sorts, we may name Madame Jacotot, a dark purple, edged with white, and blotched in the centre of each lobe with the same color. Harlequin is a double variety striped with white, and Marie Trautman is similar to *Inimitable*, only double.

TROPÆOLUM SPECIOSUM.—This is not a new species, but one which is little known. It has the habit of the beautiful greenhouse species, *T. tricolorum* and others, but it grows freely in the open ground, and flowers superbly all summer, being profusely covered with racemes of elegant scarlet flowers a foot or two in length. It has thick fleshy roots, which, if taken up in the autumn and preserved in pots with soil, may be set out again in the spring. It is a very handsome and most desirable addition to our summer blooming climbing plants.

NEW DOUBLE FUCHSIAS.—These are now as numerous as

the common kinds, and some of them really remarkable for the size of the flowers, which are far more double than the well known kinds. Among the new sorts, Solferino is a remarkable one, with immense double flowers: Mad. Cornelissen is one of the white corollaed double kinds. M. Cornelissen, a Belgian cultivator, has been very successful in raising seedlings, and many of his newer varieties are remarkably large and fine.

General Notices.

LIME AS A SOIL IMPROVER.—Old gardens are frequently unproductive through being manured, year after year, with the same kind of manure, and growing the same crops. In such cases the vegetables are rank in growth and ill flavored, potatoes and other roots watery and liable to disease, and peas and beans unproductive, and cauliflowers and cabbages subject to club disease. When such is the case, use no manure for a couple of years. The first spare ground you get, trench it two spits deep, if the ground will allow of it, and thoroughly mix with the earth, as you turn it over, a good dressing of fresh slacked lime—the fresher the better. My plan is, when the top spit is thrown to the bottom of the trench, to throw over the hot lime and fork it in, and to repeat the dose of lime over the lower spit thrown to the surface. Employed in this way, lime acts as a complete renovator of old and over-manured soil, as the produce afterward will show. The second year I repeat the lime dressing (about half the quantity of the first year), forking it in instead of digging the ground, as by that means the lime becomes more completely mixed with the soil. I add, also, to the lime a surfacing of road scrapings, if the ground is heavy or inclined to be so. By these means, giving up manure for two years, I have succeeded in bringing an old garden soil, which would positively grow nothing at all, into first class soil, producing good crops, and of the best quality.—(*Florist.*)

CYCLAMENS.—The species and varieties of this genus are very pretty. half-hardy and greenhouse tuberous plants, blooming through the winter and spring months. The species may be separated into two sections, pertaining respectively to *C. persicum* and to *C. coum*. The former are somewhat less hardy than the latter, and therefore better adapted for the greenhouse and conservatory; the latter are manageable through the winter with protection from frost by the aid of a good frame or pit. After the early spring bloom, the leaf growth is encouraged for a few weeks longer, and then they are allowed to cease from growth, and are placed upon a dry border until late summer and autumn, and then during the latter period they

are repotted or resurfaced as may be required. One half good loam and the remaining half equal portions of sandy peat and well decomposed leaf mould, form a compost suitable for their growth. When potted they are protected in frames or pits until severe weather comes on, when those of the persicum section require to be housed for the winter, and those of the coum section to be plunged in ashes or dry tan within the frame or pit. The persicum varieties are adapted for blooming throughout the early winter months, by being repotted at an earlier period, and, after the root growth is formed in autumn, the varieties in either section may be stimulated to bloom successively by the gentle heat of a greenhouse or early forcing pit. Among the most desirable varieties for early and successive bloom are *C. persicum*, and its varieties, *album*, *rubrum*, and *roseum*; and *C. africanum*. Of the coum section the most elegant are *C. Atkinsi*, *Atkinsi roseum*, *ibericum*, *ibericum album*, *coum*, *coum carneum*, and *C. vernum*. The hardy autumnal flowering kinds are *C. neapolitanum* and *neapolitanum album*, whilst *C. europæum* is also a late summer blooming species, with rich fragrant blossoms.—(*Florist*.)

A FEW RATHER NEW BEDDING PLANTS.—Those who have not seen *Alstrœmeria chilensis* when planted in masses, can form no idea of its beauty for a large bed on turf. Nothing has a richer appearance; and, as they bloom from July to September, they give us a long season of their beauty. They only require that their bed rests on a dry porous bottom, to prevent any stagnant water from lodging near their fleshy roots, and if right in this respect, they are not very particular as to soil, but a light sandy loam will suit them well. When the stems die down in the autumn, the bed may be covered over with dry ashes or sawdust, throwing a little fine earth over to hide it. With no protection but this, my plants have stood through the past winter without injury, and are growing vigorously, and will, in two or three weeks, be a mass of bloom of every shade of orange, carmine, scarlet, yellow, and pink.

Hedychium Gardnerianum, *flavum*, and *coronarium*: strong plants of these, turned out in June, have been known to bloom in September; but, whether or not, their noble appearance proves very effective for giving an exotic character to particular situations. They should have sheltered situations, exposed to the sun, and be planted out in leaf-soil, sand, and light loam.

Oxalis Bowiei makes a neat autumn bed. The bulbs should be preserved from year to year, and planted in any dry soil in April; they will commence blooming in August, and continue till frost destroys them. The flowers are a bright rose, and produced in abundance. *O. floribunda*, a smaller growing species, also makes a neat bed or edging.

Tigridia conchiflora, *Wheeleri*, and *pavonia*. These make very effective beds. The bulbs require to be planted from March to the end of April, in any common garden soil. The flowers are yellow, orange, and brown.

Lilium speciosum and *album* are fine objects in dry seasons, planted in a peat bed, or for mixing with American plants.

Gladioluses are now so well known as most desirable garden plants, that we need not further allude to them.

For certain situations, or low vases or tazzi, there are very few plants superior to the old African lily (*Agapánthus umbellátus*). It forms a noble bed when it can have plenty of water when growing.

The old Chimney Campanula (*C. pyramidális*) is another favorite plant for certain situations.

Marvel of Peru. This plant is extensively planted on the Continent, where it grows freely, and looks well, covered with its many-colored flowers. We rarely see it in Britain, where it might be judiciously introduced as a fine plant for a large lawn bed, or for mixing in borders. It will bloom the first year from seed sown in heat, and afterwards the tuberous roots should be preserved like dahlias.

Canna. The exotic species are all now coming into general use in Britain; on the Continent they have been planted out for several seasons. The noble foliage of all the species renders them extremely valuable for giving effect to the flower garden. Our plan is to mix the tall scarlet lobelia or gladioli with them, which, when combined together, form striking groups. Soil, light and open.

Anomatheca cruenta. This pretty little bulb forms one of the neatest border plants we know for larger masses. It is also useful for small beds, from its neat habit and showy little flowers.

Asclepias tuberosa. This plant was formerly much more grown than at the present time. It forms an excellent orange color bed, flowering throughout the season, and thrives best in peaty soil.

Caladium and Arum, two allied genera, of which several species are largely planted on the Continent for flower-garden decoration in warm situations. Their colored, rich foliage tells with admirable effect; and those who have the chance should try them in open porous soil, well supplied with water in dry weather.—(*Florist.*)

AMARYLLISES.—To me it is something extraordinary that, while florists are picking up everything in the way of new cinerarias, calceolarias, &c., so very few individuals grow amaryllises; and yet they are, perhaps, more easily managed than either of the above favorite classes, and no comparison can be drawn between the superior beauty of our amaryllis, when in good bloom, and either cineraria or calceolaria. With the amaryllis there is a nobleness and grandeur which leaves the others far in the distance, and, beside these advantages, very many of them possess a delicious fragrance. I only wish Mr. Turner, or the Messrs. Henderson, would grow and exhibit them, when we should soon get them known and popularized among the professed florists.

To grow them, a low pit, with a hot-water pipe round it, is all that is required. When growing, they delight in a warm, moist atmosphere, with plenty of light, and a slight bottom heat, although this is not absolutely necessary. Supposing an attempt made at cultivating them in January, and that you start with dry bulbs, put the bulbs in medium sized pots, allowing

plenty of drainage, and using a rather rich loam and sand for potting. You may now place the pots on the surface of a tan or leaf bed, to afford a slight bottom heat, and within eighteen or twenty-four inches of the glass. The temperature, if they are not wanted in bloom very early, may be 50°, raised gradually to 60° as they show for blooming. This latter temperature is quite sufficient for ordinary culture by fire heat. As they throw up their flower-scapes, the plants may be removed to the conservatory or greenhouse, or for in-door decoration, than which, when mixed with ferns and mosses, nothing is more useful or beautiful. If they are not wanted to bloom before June, a much less heat would suffice; and, indeed, an ordinary brick pit, without fire heat, would bring them sufficiently forward. After they have done blooming they should be placed near the glass, and encouraged to perfect as many leaves as they produce. When these give indication of turning yellow or ripening, reduce the quantity of water and allow more air, by which treatment the bulbs will gradually ripen off their leaves and get into a dormant state by October, when the bulbs in their pots may be laid on one side, in a shed or cool house, to winter. By forcing them a little earlier, in May or June, I have managed to ripen the bulbs by August, when, by placing them on the shady side of a wall for a month, and again introducing them to the frame, they have given me a second bloom in October, and on to Christmas.

I see, by the Bulb Catalogue of the Messrs. Henderson, Wellington Road, that they cultivate a valuable collection of amaryllises; should any of your readers wish to start with them, they cannot do better than apply at once.—(*Florist.*)

GAZANIAS.—A very interesting group of the different kinds of these in cultivation, in illustration of their differences of habit, was shown at one of the meetings of the Royal Horticultural Society by E. G. Henderson & Son. *G. pavonia* was of close or tufted growth, with long stalked leaves, which were regularly pinnatifid, sprinkled with rigid hairs above and on the ribs beneath. It was described as a shy bloomer; but with large, well-formed, and very beautiful flowers. *G. rigens*, of close tufted habit, was said to be more restricted in growth than its reputed varieties; the leaves were smooth, narrow, and tapered into a long stalk-like portion, acute at the apex, and either simple and merely widened upwards, or occasionally with three or four pointed lobes. It is a fine old plant when suitably grown. *G. rigens major* was more robust, rather close-habited, with broader, that is, spatulate, bullate, crowded leaves, and blooming scantily, so that it is little sought after. *G. splendens*, or *rigens hybrida*, which is the variety or species lately brought into notice as a valuable bedding plant, blossoms profusely throughout the summer and autumn months, and afterwards by protection in the greenhouse continuing to expand its later blossoms until January; it had smooth spatulate leaves, and a free branching habit. *G. uniflora* was of branching habit, but without special treatment too diffuse to produce adequate blossoms for flower-bedding, and the flowers are yellow, instead of orange, as in all the preceding.—(*Florist.*)

Gossip of the Month.

LILIUMS.—I notice by your June number that you have proven the *Lilium giganteum* to be hardy. I planted out a large root of it last November among other lilies, and a slight covering of salt hay was thrown over the bed. It has now grown up most vigorously. I think the public should be disabused as to the name of this splendid plant. It is not a *lilium*, but a *calla*, or some genus allied very closely to the *calla*. *Lilium cordifolium* vel *cordatum* is also of the same family. They are called lilies in their native countries, on the same basis as *Calla Ethiopica* is called Ethiopian lily. I have taken great pains to obtain all the species and striking varieties possible, and have formed them in groups, so that the peculiarities of each may be contrasted. In the collection are comprised *Lilium puniceum Sieboltii*, *colchicum*, *Thunbergianum grandiflorum Sieboltii*, *californicum*, *japonicum odorum verum*, *Takesima*, *Wallichianum*, *concolor vel sinicum*, *tenuifolium*, and other very rare species, and also your five splendid new seedlings of the *Lancefolium* family, and fourteen other splendid varieties of the same Japan species. The entire collection comprises one hundred and fourteen species and varieties, without including any of the *Martagon* and *Pomponne* varieties. The earlier varieties commenced blooming June 10th, and the others will prolong their bloom until the middle of September, presenting a blaze of splendid flowers unsurpassed by any other family save that of the gorgeous *pæonies*.—Yours most respectfully, Wm. R. PRINCE.

[Our correspondent is wrong once. The *Lilium giganteum* is not a *calla*, but a true lily.—Ed.]

Societies.

BELMONT FARMERS' CLUB.

THIRD ANNUAL STRAWBERRY FESTIVAL.—The Third Annual Show of this flourishing Club was held in Belmont, on Saturday, the 30th of June, and though not quite up to that of last year, was yet as magnificent a display of strawberries as it is possible to make. The dry weather had seriously diminished the size of the fruit, as it had somewhat cut short the crop, but still many of the specimens, particularly the prize berries, were good enough, and well sustained the acknowledged reputation of the Belmont cultivators.

There were forty-one entries of fruit, containing lots of two and three quarts each. Twenty-three were Hovey's Seedling, eleven Brighton Pine, one Jenny Lind, one Jenny's Seedling, one Cutter's Seedling, and five others. The Brighton Pine were better than last year, but the attractive specimens were the Hovey's which were superb, the berries measuring five to six inches in circumference. Mr. J. O. Wellington, who was the suc-

cessful winner of all the first prizes, deserves credit for his superior culture. His basket of three quarts of Hovey's were truly remarkable.

At this late hour, just as we are closing the present number, we have only time to add that the Festival was a most successful affair—was well attended, and realized a nice sum for the benefit of the Club. We only wish all strawberry cultivators could witness such a display. It would soon set at rest the questions as to what are the best and most profitable market strawberries. The following is the award of premiums:

CLASS I. Sweepstakes, best three quarts, open to all varieties:—

For the best, to J. O. Wellington, \$8, for Hovey's Seedling.

For the next, to Alonzo Simpson, \$6, for Hovey's Seedling.

For the next, to William Richardson, \$4, for Hovey's Seedling.

CLASS II. Best two quarts of Hovey's Seedling:—

For the best, to J. O. Wellington, \$5.

For the next, to William H. Locke, \$3.

For the next, to Willard Hill, \$3.

CLASS III. Best basket of Brighton Pine:—

For the best, to J. O. Wellington, \$5.

For the next, to Willard Hill, \$3.

For the next, to Wm. H. Locke, \$2.

CLASS IV. Best quart other than the above:—

For the best, to W. H. Locke, \$3, for Jenney's Seedling.

For the next, to J. O. Wellington, \$2, for Jenny Lind.

GRATUITIES.—For Hovey's Seedling, to Edwin Locke, \$1; to D. C.

Chenery, \$1; to Varnum Treat, \$2.50; to Chas. Stone, \$1; to Thaddeus Frost, \$1.50; to Matthew Patterson, \$3.

To David Mack, for Scotch Runners, 50 cents; for Wood strawberries, 25 cents.

To C. W. Winn and F. E. Yates, for display, \$1.50 each.

Massachusetts Horticultural Society.

ROSE AND STRAWBERRY SHOW, June 30th.—The finest exhibition since the opening of the Hall, was made to-day, and we have delayed our issue of the month to give a brief report. The weather had been very dry and rather warm, and had somewhat lessened the expectations of a good display. But it was in most respects equal to last year. Unfortunately, the show was confined to a few hours only, which precluded the preparation and arrangement of the Hall, and did injustice to some of the exhibitors, who could find no space to put up their flowers.

The June roses were very fine, and the stand of Messrs. Hovey & Co. contained the following superb sorts:—*Provins*: Ohl, Shakespeare, Boula de Nanteuil, Tricolor de Flanders, Amiable, Sophie Cottin, Margaret Mary, Dutch centfeuilles, Walter Scott, Kean, Bizarre Marbreé, Gil

Blas, Cynthia; *alba*: Mad. Hardy, Mad. Legras, Saville de Bruxilles, Felecity. *Hybrid China*: Mad. Plantier, Vandael, Coupé d'Hebe, George IV, Reine de Belgique, Thurette, Paul Perras, Paul Ricaut, L'Obscurité, Adele Becar, Audigne de le Blanchaire. *Damask*: Painted, Mad. Stoltz.

The Hybrid Perpetuals were very fine, and some remarkable blooms were conspicuous in the several stands, particularly General Jacqueminot, Augustie Mie, and Jules Margottin. We have not space to give the names. Moss roses were also contributed in large numbers, and Wm. Lobb, Nuits de Young, and others in the stand of Messrs. Hovey, which contained thirty varieties, were very beautiful. In tender roses Messrs. Evers & Comley and J. Nugent had some large and beautiful specimens.

The show of cut flowers was never finer. The President, Messrs. Hovey & Co., Barnes & Washburn, Evers & Comley, J. Nugent, W. C. Strong, E. Stone, Spooner & Co., and others, had each a large variety and good specimens.

In pot plants six remarkable heaths came from Hovey & Co., and the new *Acacia oleifolia elegans*, extremely beautiful and a perpetual bloomer, with a pendant habit and deep yellow globular flowers—a superb acquisition. These came too late for competition. Evers & Comley also contributed several plants.

Our report is necessarily imperfect from the lateness of the month, and we have only room to name the following contributors besides those enumerated, viz.: F. Winship, J. McTear, M. P. Wilder, F. Parkman, Cambridge Botanic Garden, M. Trautman, Thomas Welsh, Walker & Co., Mrs. B. Bruce, Messrs. J. W. Wolcott, W. Heustis, J. C. Chaffin, C. Copeland, J. Hogan, and G. G. Hubbard. Messrs. Wilder, Hubbard and Copeland had some remarkably fine roses.

Two flowers of *Stanhoepa tigrina* were sent by G. W. Pratt, which for size were very remarkable. They deservedly commanded the silver medal, and were a prominent feature of the show.

AWARD OF PREMIUMS AND GRATUITIES.

HARDY JUNE ROSES.—Class I. Owing to some slight oversight in neglecting to name three or four of the roses in season, the stand put up by Messrs. Hovey & Co. was disqualified.

Class II. None offered for premium.

Class III. For the best twelve varieties, to G. G. Hubbard, \$4.

For the next best, to W. C. Strong, \$2.

For the next best, to J. Nugent, \$1.

HARDY PERPETUAL ROSES.—Class V. For the best twenty-five, to John Hogan, \$6.

For the next best, to Hovey & Co., \$4.

For the next best, to Warren Eustis, \$3.

For the next best, to Barnes & Washburn, \$2.

Class VI. For the best fifteen, to F. Parkman, \$4.

For the next best, to C. Copeland, \$3.

For the next best, to W. C. Strong, \$2.

Class VII. For the best ten, to J. McTear, \$3.

MOSS ROSES.—Class VIII. For the best display of named varieties, to Hovey & Co., \$4.

For the next best, to C. Copeland, \$2.

TENDER ROSES.—Class X. For the best display of varieties, not less than ten, to Evers & Comley, \$4.

For the next best, to J. Nugent, \$3.

LARGE BOUQUETS OF ROSES.—Class XI. For the best, to Evers & Comley, \$4.

For the next best, to Hovey & Co., \$3.

POT PLANTS.—Third prize, to Evers & Comley, \$4.

SPECIMEN PLANTS.—For the best, to Evers & Comley, \$3.

CUT FLOWERS.—For the best, to Hovey & Co., \$5.

For the next best, to Spooner & Co., \$4.

For the next best, to Evers & Comley, \$3.

GRATUITIES.—To G. W. Pratt, a silver medal, for *Stanhopea tigrina*.

To E. S. Rand, for *Kalmia* and *Orchis grandiflora*, \$2.

To E. Stone, for collection of roses, \$6.

To F. Winship, J. McTear, W. C. Strong, Barnes & Washburn, F. Parkman, M. P. Wilder, C. Copeland, W. Heustis, G. G. Hubbard, for display of flowers, \$2 each.

To J. Nugent, A. C. Bowditch, T. Walsh, Walker & Co., Mrs. Bruce, Mrs. J. W. Wolcott, Miss Story, for display, \$1 each.

To M. Trautman, for bouquets, \$2.

To Miss Russell, for bouquets, \$1.

To Eliza Lynde, for painted flowers from nature, \$2.

STRAWBERRIES.—In consequence of the offer of two prize cups for strawberries open to all competitors,—the first by H. B. Stanwood and the second by C. M. Hovey, valued respectively at \$15 and \$10,—there was unusual interest manifested in the exhibition of this fruit, and a very fine display was made.

Messrs. Hovey sent *La Constante*, Sir C. Napier, *Bonté de St. Julien*, Admiral Dundas, Oscar, Austin Seedling and Hovey's Seedling. The *La Constante*, though scarcely full grown, were truly magnificent specimens, and carried off the silver cup. Mrs. T. W. Ward, of Canton, was second with a very superb dish of Hovey's Seedling, fully ripe and very high colored, but not quite up to the standard of size of this old favorite. Other contributors were as follows:—Boston Pine, by Thomas Walsh; a basket of splendid varieties, Thomas Rice, Jr.; *Lady of the Lake*, J. C. Scott; Rivers' *Eliza*, Samuel Phipps; Wilson's *Albany*, William Herrick; Hovey's Seedling, Mrs. Gleason; *Eliza*, Hooker and Brighton Pine, W. H. Barnes; Walker's Seedling, Walker & Co.; Rivers' *Eliza*, Charles Minot; Hovey's Seedling, Hervey Davis; Bunce's strawberry, Bunce & Co. The Boston Pine of Mr. Walsh was, we believe, considered the finest single dish, except the premium fruit.

R. W. Turner, of Randolph, exhibited a splendid Black *Hamburgh* grape vine, grown in a pot, on which were nine large bunches of grapes. Messrs. Allen and Hubbard also displayed varieties of grapes.

Horticultural Operations

FOR JULY.

FRUIT DEPARTMENT.

GRAPE VINES in the grapery will now be maturing rapidly. Air abundantly both day and night, in order to secure a rich color and fine flavor. Continue to stop the laterals where they are growing vigorously. Vines in later houses will now be swelling their fruit rapidly, and will need attention. Damp down the house morning, noon and night, and air freely in fine weather, shutting up in good season till the grapes begin to color. Vines in cold houses will now be ready to thin the fruit. Maintain a genial warmth, and be liberal in moisture in sunny weather; guard against cold drafts of air, which are sure to bring on mildew; top all laterals in good season, and tie in new wood for next year.

PEACHES IN POTS, now in the open air, should be mulched and freely watered till the fruit begins to color.

STRAWBERRY BEDS will now require attention. Dig up a portion of the old beds to make room for fresh runners; manure *very liberally*, and turn the fresh soil to the surface; then lay in the young runners as they grow. Prepare ground for new beds to be planted in August.

SUMMER PRUNING should be attended to. Pinch off all superfluous shoots, and shorten the spurs as before advised.

FRUIT should be thinned at once: the crop is small enough this year, but some kinds require thinning to have large specimens.

FLOWER DEPARTMENT.

The season being so far advanced as to allow the removal of all the plants to the open air, their space should now be filled, from reserve frames or houses, with summer blooming plants, such as Gloxinias, Achimenes, Fuchsias, Japan Lilies, &c., which will keep up the show throughout the summer. Attend now to the preparation of the winter-flowering plants, repotting all such as need it, and bringing on young stock. Look after the summer climbers, and train them up carefully, cutting away superfluous branches.

CAMELLIAS that require it should be repotted immediately; it is the best season for this operation.

AZALEAS should be repotted; continue to grow them in a warm close house, nipping off the ends of the young wood to make hardy plants; tie into shape all intended for specimens.

CHRYSANTHEMUMS should be shifted as soon as they fill the pots with roots. Use rich soil, and do not let them flag for want of water. Plunge out in an airy place. Top the shoots as they advance in growth.

PELARGONIUMS should be headed down this month; giving them but little water until they begin to grow. Put in the cuttings for young stock.

BEGONIAS should be repotted; water more liberally now.

ACHIMENES should be shifted into their flowering pots.

CHINESE PRIMROSES should be kept in a cool frame. Seeds may be planted now.

CINERARIAS should be divided and potted, and placed in a cool frame, partially shaded till well established. Sow seeds now for a young stock.

CALCEOLARIA SEED should be sown this month.

SALVIAS, VERBENAS, &c., for winter blooming, should be repotted, and plunged out in the open ground.

BOUVARDIAS should be repotted.

TUBEROSES should be repotted.

SPECIMEN PLANTS, for particular purposes, should be repotted, according to their growth.

SCARLET GERANIUMS, for early winter blooming, should be plunged in the ground in pots.

CALLAS should be allowed to dry off by turning the pots upon their sides.

AMARYLLISES should be kept growing in the greenhouse, so as to obtain large strong bulbs.

FERNS should now have a shady situation in the greenhouse, where they can be kept uniformly moist and in fine growing order; repot such as require it.

OXALIS BOWIEI AND HIRTA should be repotted.

SWEET ALYSSUM, MIGNONETTE, and other similar flowers for winter blooming, should be planted this month.

HEATHS, now done flowering, should be headed in, and placed in a situation shaded from the noonday sun. Repot if necessary.

HOTHOUSE PLANTS, of various kinds, will be benefited by giving them an abundance of air and a little rest at this season.

FLOWER GARDEN AND SHRUBBERY.

The grounds should now be in the finest possible order. The lawn should be closely cut, the walks hard and smooth, and borders clean. Roll the lawn before mowing, and stir the earth wherever dry and hard. Cut away old flower stalks, and prune shrubs which have done blooming. Stake and tie up Hollyhocks, Dahlias, and other tall-growing plants, and peg down Verbenas and other dwarf-growing flowers.

DAHLIAS should be staked, and mulched with strawy manure. Water freely in dry weather.

GLADIOLUS should be neatly staked.

DAISIES should be divided and reset in a half-shady place.

PANSY SEED should be sown for next spring stock.

PÆONIES will be benefited by cutting off the old seed pods.

PHLOXES should be watered in dry weather.

DWARF PINKS may be divided and reset.

ROSES may be layered this month.

PLANTS of all kinds may be plunged in the ground to fill vacant places.

HOLLYHOCK, BLUEBELL, and other biennial seeds may be sown this month.

CLIMBING PLANTS should be neatly tied up to strong stakes.

SHRUBS of all kinds may be layered this month.

STRAWBERRY CULTURE.

AT the risk of repeating what we have written before, we once more revert to strawberries and strawberry culture. It certainly is somewhat surprising that after a period of twenty-five years, during which period so much has been written upon the strawberry, its culture appears still to be greatly misunderstood. Every volume of our Magazine contains one or more articles upon the subject. The late A. J. Downing, the late Hon. E. Vose, President of the Massachusetts Horticultural Society, Hon. J. C. Gray, N. Longworth, Dr. J. H. Bayne, and others, have detailed their culture, besides many papers of our own, and numerous articles from foreign journals, giving both the market culture and garden culture of this delicious fruit, will be found in our twenty-six volumes. Yet, after all this, there still appears to be a need of information. A correspondent, who is interested in strawberry culture, sends us the following:—

Will you be so good as to prepare (or cause to be prepared) and publish in your Magazine, a short article, (or long if you think proper,) on the best mode of cultivation (for market) of the pistillate strawberries, and especially your seedling, (which I think the best yet raised,) having reference to the raising them in garden or field, and also to different soils, the kind and quantity of manure, time and manner of planting, best mixture of variety for impregnation; also, with reference to unavoidable neglect and carelessness, &c. &c. Thinking probably the Cambridge strawberry-raisers understand the matter as well as any in this country, at least, I am desirous of knowing their practice, and presume it would gratify many others besides me; and if such an article has not appeared in your journal within a year or two, (and I have not noticed any,) I hope you will gratify the lovers of this beautiful fruit, for I am almost ready literally to subscribe to what some one has said, that “when we take into consideration the ease and

simplicity of its culture, its continued bearing and productiveness, its exemption from all insect depredations, its delicious flavor and healthy influence upon the system, it ranks first in importance among the fruits of the earth.”—Respectfully yours, SHELDON MOORE, Kensington, Ct., June 29, 1861.

We certainly most willingly comply with this request, and are glad to have the opportunity of doing so, not because the information has not already been given, as Mr. Moore will see by turning to our volume for 1859, (XXV. p. 117), but because it affords us the gratification of stating, what we could not do before, the mode of cultivating the strawberry for the market adopted by the most successful growers in the United States,—the Belmont cultivators,—from our personal observations, for which object we examined their beds when in full bearing the present season for the first time; and though it is precisely the same as that detailed in the volume above referred to, it is a pleasure and a satisfaction to be witness to it, and enables us to state some particulars that are important to a full knowledge of the system of culture, and the value of particular varieties.

Market gardeners always act with great caution. The profits of cultivation are so easily diminished or totally annihilated by poor seeds, spurious varieties, and other causes, that they are suspicious of all new things, and never enter into their growth till they have become pretty thoroughly convinced that they “will pay,” to use the current phrase of the day. An acre of cabbages that never head, or an acre of strawberries that produce only quarter of a crop, or are so sour that nobody will purchase them, is just so much time and labor entirely lost. Hence the reluctance with which they engage in the growth of new things; but when once the value of any particular vegetable or fruit is ascertained, the tenacity with which they cling to its growth is only equalled by their refusal to take up every novelty which is yearly offered. Thus it was with the strawberry. The old Virginia was the prominent variety in cultivation for the Boston market till within eight or ten years, and it was not given up until Hovey’s Seedling and the Boston Pine had stood at least

five years' trial, and proved to be the strawberries for profitable culture. A yearly inspection of our beds only led to the remark "that they would do very well for fancy growers, who could work over and nurse the plants, but would never stand the treatment for field culture;" till at last one grower, more enthusiastic than the rest, and who could not resist the tempting show of magnificent berries, ventured upon a trial. The result has been, that most of the cultivators have discarded all other kinds, and would grow the Hovey's Seedling exclusively but for the necessity of fertilizers to secure a crop.

The Belmont cultivators produce large quantities of strawberries for the Boston market—we should say one half of the supply. But, with one or two exceptions in the vicinity, other growers raise the same varieties. Mr. Scott of Brighton, whose crop is some 10,000 quarts a year, cultivates this year the Hovey, Brighton Pine, and a new seedling called the Lady of the Lake; while his next neighbor adjoining, grows exclusively the Boston Pine, covering two or three acres. But the main supply is the Hovey. The Wilson was tried last year by one cultivator to the extent of nearly an acre, but though the yield was very good, the fruit is so difficult to sell that those who bought last year refused to take a single quart this year: in fact, the people, to their credit be it said, refuse to buy it or eat it. Its culture is virtually abandoned hereabouts. Such is the condition of strawberry growing, so far as a personal inspection of the beds, and conversation with all the principal cultivators the present season, has enabled us to learn, and we believe we have had the means of ascertaining these correctly.

The strawberry is cultivated in a great variety of modes, viz., in rows, in hills, and in beds,—some allowing the plants to bear only one crop, others two, and some three. Some mow off the leaves after the crop is gathered; others turn in the old plants to make place for the new runners, and thus keep the beds on the same ground several years. In either way, with good judgment and proper treatment, good crops may be produced; and under ordinary garden cultivation it is hardly possible, with a good soil and liberal manuring, to prevent a successful result, whatever may be the mode adopt-

ed. But in market culture on an extended scale, where the greatest profit is and ought to be the object, it is all important to follow that system that will give the greatest paying crop, for it may be that 2000 quarts to the acre under one mode of culture will pay better than the same crop or even 3000 quarts by another; the cost of labor and the quality of the fruit consuming the difference. It is therefore the great object with market gardeners to find out that system which gives the best paying results, and to follow it up.

Loudon, who is good authority upon the culture of fruits in England, thus speaks of the various modes of growing the strawberry in beds:—

“The large kinds are planted in rows two feet apart and eighteen inches distant in the row; each bed contains two rows, and an interval of three feet alternates with each bed, as an alley from which to water and gather the fruit, &c. The late Mr. Keens grew his strawberries in this manner. The runners were first planted in a nursery bed, where they remained from August till March, when they were removed to the fruiting beds. There they bore an excellent crop the first year, a very good crop the second, and a good crop the third, after which the plants were dug down. Another mode of growing strawberries in beds is as follows: a plot of ground is laid out in beds three feet wide, with alleys between fifteen inches wide; and each bed is filled with plants one foot apart every way, early in August. Next year, after the plants have borne their crop, they are dug down, with or without manure, as may be deemed necessary, and replanted. In this way strawberries are grown on the same ground for a number of years, no plant ever producing more than one crop. A third mode of growing strawberries in beds consists in having every alternate bed, not of strawberries, but of some low-growing crop; and keeping it under low-growing crops for two, three, or more years. The beds are then prepared for the reception of strawberries, and they are filled simply by allowing the runners of the adjoining beds to take possession of them. This they will have done, in the most effectual manner, by the end of August, when the plants must be thinned out where too thick, and the parent beds all dug down and cropped with

low-growing vegetables, such as turnips, carrots, onions, &c., for one, two, three, or four years, according as it may be desired to have large or small fruit. When the runners are only allowed to bear one crop, the fruit will be large and early, but if they are retained for three years the fruit will be much smaller the third year than the first. This mode is attended with very little labor, and if the runners are only allowed to produce one crop it will be as abundant and large as by any mode of culture whatever."

Thus it is satisfactorily shown that if the plants are only renewed every year or two, good crops may be secured. The only question yet remains, which will give the best paying results. On this rests the whole question of the market culture of the strawberry.

We shall now detail the two modes pursued by the cultivators around Boston. We say two, for there may be others, but we take such as we have witnessed, and these comprise the Belmont system and that pursued by Mr. Scott, and some others.

The Belmont growers prepare their ground well by some crop the previous year to planting. They manure well, plough deep, and set out their plants in April or May. These are planted in single rows, *about a foot apart in the row*, and *just four feet from row to row*, running the whole width and length of the ground, with an occasional cross alley of three feet for easy access to the centre of the field. The ground is kept clean until the runners begin to spread rapidly towards the last of June, when no more labor is required during the season, other than to pull out a few weeds, for the young plants so quickly and completely cover the ground that very few weeds will start up. By the autumn, the whole ground will be covered, when a walk about a foot wide is cleared out in the middle of the rows, leaving solid beds of plants just three feet wide. This walk is for the pickers to stand in, also to afford air and light to the plants. On the approach of winter the beds are covered with meadow hay, which is removed in the spring, except that in the walks between the beds, which is left undisturbed in order to keep the fruit clean.

The fruit begins to ripen about the middle of June, and is usually all gathered by the 10th of July, when the beds are immediately turned under with the plough, a new plantation made in the spring supplying the crop for the next year. The next spring the land is well manured and planted with potatoes or some other crop, and the following year is ready for another plantation of strawberries.

This is the mode now pursued by the best Belmont cultivators with the Hovey's Seedling, and though an old plan, pursued by English cultivators as we have above shown, it was entirely original here with Mr. J. O. Locke who first tried it, and with so much success that nearly all follow it. The old plan was to keep the beds two or three years, and this is still followed by those who raise the Old Virginia.

As regards fertilizers, the Belmont growers plant six rows of Hovey's Seedling, and then one or two rows of Jenny Lind, Boston Pine, or Brighton Pine. These are ample to thoroughly fertilize the plants. These sorts are subjected to the same treatment,—all ploughed up after one crop. More complete details of the Belmont plan will be found in our volume for 1859.

The system pursued by Mr. Scott and some of the extensive Brighton growers is different. It is as follows. The beds are marked out *three feet apart*, with an alley of a foot, (which is just the same as the Belmont growers allow;) but *two* rows of plants are set out in each bed, instead of one; these are planted about nine inches from the edge, leaving a space of about eighteen inches between the two rows. The plants are allowed to cover all the ground, (three feet wide,) the runners in the walks being cleared away.

The treatment the first year is just as we have detailed with the Belmont growers. But instead of ploughing up the beds after the first crop, they are allowed to stand the second year, keeping them clean and removing superfluous runners. The crop the second year is good, but not equal to the first; after that they are ploughed up and the ground cultivated a year or two with some crop, when it is again occupied with strawberries.

The difference in the two modes is this. The fruit of the

Belmont growers is in the highest perfection every year, (excepting injury from drought,) with less labor in planting the beds at first, and in keeping down the weeds the second year. By the Belmont plan, there is a crop every other year; by the Brighton plan, two crops in three years. But it is believed that the extra size and product of the Belmont system will yield a much greater profit than the inferior size and diminished product of the second year on the Brighton plan. What the exact crop of Mr. Scott is per acre, taking the two years, we do not know, but the crop of Mr. Wellington was 4100 quarts in 1859, 4000 in 1860, and this year, in consequence of the dry weather, less than 3500. The difference in the expense of culture is, we should suppose, not large; but the crop must be much smaller and inferior the second year.

There may be other modes pursued by some of the smaller growers, but we think not to any extent. Some few have tried the experiment of growing in hills, but not sufficiently to give any satisfactory results. In fact, it is not known to all that certain kinds of strawberries will not do well in hills, while others will do little only in that way. All the English strawberries are far more productive in hills or rows, while Hovey's Seedling and some other sorts seem to give their finest crop on young plants in new beds, pretty thick together. Mr. Knox, a strawberry cultivator in Pittsburg, Pa., thinks planting in hills the most profitable; but this can only be determined by a comparison of the crop, the cost of labor, &c. We are satisfied by long experience that the foreign strawberries, with one or two exceptions, cannot be cultivated profitably in beds; while the same experience convinces us that the Hovey's Seedling and several of the American strawberries will not give profitable results in hills.

We have thus pretty explicitly given all that is known concerning the market culture of the strawberry in the neighborhood of Boston. What it is in other places we do not know. But we wish to say, that so far as we are able to form an opinion after thirty years' experience especially devoted to this fruit, that the Belmont plan is that which is best adapted to Hovey's Seedling. Such a crop of strawberries on a large

scale we never saw before, or of finer quality; the ground was literally strewn with them, and of enormous size, too. The best evidence of this is the fact that one of Mr. Wellington's pickers gathered 114 quarts in one day, placing them in boxes neatly topped and ready for market! We have before heard of 60 to 90 boxes a day, but this beats any previous feat. It will best convey an idea of the abundance and size of the fruit.

There are many things connected with strawberry culture for the market to be considered, but as our remarks are already longer than we intended, we shall defer it till another time.

TAXATION OF AGRICULTURAL PROPERTY.

BY WILSON FLAGG.

It is a maxim in political economy that taxes should be imposed in such a manner as to promote the general interest of the country in other ways beside that of increasing the public revenue. By one mode of taxation, for example, we might encourage industry and discourage luxury and speculation, and by another mode we might produce the opposite effects. No subject of legislation, therefore, requires more wise prudence and foresight than the imposition of taxes. Agricultural property, being always apparent, and incapable of being concealed from the knowledge of the public, like some other kinds of property, has always suffered its full share of the burden of taxation; and a wise discrimination has seldom been used in the act of levying those taxes. The Federal Government raises the principal part of its revenue by indirect taxation, discriminating rather in favor of manufactures than for the benefit of agriculture. Of this I shall say nothing, but confine my remarks to the laws and usages by which taxes are levied under the State government.

The laws of this State make no important discrimination; and the only power which is placed in our hands, outside of the legislature, to modify the taxes, so as to produce the effect of wise discrimination, is that which we can use as valuation

committees. It is self-evident that these bodies of officers have the power, by the right or wrong use of their discretion in the appraisement of different kinds of property, to do much good or much evil. It is seldom that these committees, who are appointed with but little reference to their education, are governed by any very-well-understood principles. There is one general principle, however, which ought to be understood and acknowledged, because it is always more or less a rule of practice; and if we acknowledge and admit the principle, we are the more likely to be wisely governed in the application of it. The general principle referred to is, that all property should be regarded as having *two values*—a *taxable* value and an *intrinsic* value. In apportioning an estate among heirs, the intrinsic or market value of property is to be regarded; while in apportioning taxes, the taxable value of property is to be regarded.

It matters not whether the laws recognize these distinctions, or otherwise,—since every man who is employed in appraising property for taxation recognizes them in practice, even if he does not admit them in theory. As the acknowledgment of the principle is implied in all the practice of our valuation committees, let us consider, by what general rules it ought to be governed or regulated. My present remarks, therefore, are addressed to the public in general who may be employed as appraisers, and not to legislative bodies. How then shall we be governed in order to make wise discriminations?

If an individual has made certain improvements, it seems invidious to tax him for the full value of them, because this would be regarded as a discouragement to enterprise; but a little examination of the subject will prove that it is not so. Suppose this individual to have three thousand dollars invested in bank stock, that yields him an interest of six per cent., and that he believes he can invest the same in a saw-mill and thereby double the value of his property in a few years. If he has judged wisely, he can afford to pay the same tax upon his property in its new shape, to say the least, as when it was in the bank. The taxable and the intrinsic valuation of such property ought, therefore, to be alike.

But there are other kinds of enterprise in which this same

amount of capital might be actually sunk for a long period of years. Such would be the fact if it were laid out in planting an orchard of apple trees or a forest of timber trees, because they could not be expected to yield the owner any profit, or the capital thus employed any interest, under fifteen years in the one case, and thirty years in the other. Such property, therefore, ought to have two valuations, differing very considerably in amount. As taxable property, it should be valued only according to the interest it may yield the owner, as pasture or mowing land, or tillage—such as it may admit. But in appraising it to be divided among heirs, or for purposes of sale or exchange, the actual amount of capital, judiciously sunk in the orchard or the plantation, should be the criterion of value, considered also with reference to the thrift of the trees, and the general prosperity of the undertaking. All such discriminations are necessary, that men who have capital to spare may not be discouraged, by the apprehension of paying taxes on capital that yields no interest, from spending it on enterprises which are attended with distant advantages to the public as well as to themselves.

This principle, however, would not require any discrimination in favor of *buildings* to be used for agricultural purposes, for though a certain amount of capital is *apparently* sunk in a new barn and other out-buildings, it is not to be regarded as *actually* sunk, but rather as profitably invested for the accommodation of farm stock and agricultural products. This is not the kind of property that requires discrimination in its favor; and if the owner has erected more buildings than he can profitably use, or laid out upon them an unwise amount of expense, he, rather than the public, must suffer the consequences of his folly. Neither should any discrimination be made in favor of capital sunk upon luxurious and ornamental objects, in the shape of household furniture, or the furniture of a pleasure-ground—though they pay no interest—because the public good does not require that men should be encouraged in sinking money for the gratification of vanity.

Perhaps in the appraisement of no other kind of property have so many errors of judgment been committed as in that of woodland. The intrinsic valuation of the woodland would

be based on the worth of the timber, if it was going to be sold and felled for the market, added to the value of the soil upon which it stands. But if the taxable valuation was made precisely by the same rule, and if the wood was considerable and the soil worthless, the owner might be tempted to cut it down, and destroy a very important standing wood, to avoid the tax upon it. The public would suffer by such an act in two important respects: it loses the standing wood, and the revenue which the tax upon it would afford.

A large amount of valuable growing wood was cut down for this cause, after the valuation of 1850, in the town of Andover, where I had an opportunity of witnessing its effects. This kind of property was so highly appraised by the valuation committee, who did not judiciously discriminate between different objects of taxation, that extensive tracts of growing wood were swept away to escape the tax; and the town of Andover did not obtain so much revenue from this source, during the ten years following, as it would have received if twenty-five per cent. had been abated from the valuation of 1850. Beside this loss of revenue, the owners of the wood were tempted by this injudicious valuation to destroy their own property to avoid the tax, and just in the same proportion did they lessen the wealth of the town. All standing wood is, in an important respect, public property; for, beside the tax it pays, it yields essential benefit by its influence upon the local climate.

In such ways, by inconsiderate valuation of this description of property, a company of town assessors might, in one decade, greatly diminish the agricultural wealth and advantages of a township, and at the same time cause the ruin of the landscape which is beautified more by a good proportion of natural wood, than by any amount or description of embellishment. The proper course to be pursued by appraisers in these cases is to fix a taxable valuation upon woodland considerably below its intrinsic worth, and this should be done, not for the sake of showing favor to the owner, but for the benefit of the public revenue, and for the preservation of the wood. Especially ought means of this sort to be used to preserve wood standing on certain sites, such as barren elevations and steep

declivities, which cannot be stripped of their trees without public detriment.

Capital judiciously sunk in an enterprise that cannot yield any interest for a number of years, should always be favorably considered ; but, as I have already repeated, capital sunk in luxurious and ornamental appendages to one's estate, is not of this description. No encouragement, under any circumstances, should be offered to luxury or to pride. I mention this because there always is a disposition manifested to favor such things, which are fallaciously regarded in the light of a generous use of one's money. It is argued that if a man has exhibited an enterprising spirit by laying out a great deal of money upon a showy dwelling-house, it is wrong to check the workings of such a liberal disposition by taxing all the capital expended upon it. Such reasoning would be just if this liberal use of money was exercised in a wise or in a charitable direction, but this profuseness in the use of money for the gratification of one's vanity is a public evil, because it takes capital out of useful investments to employ for purposes that do not increase any one's happiness or prosperity.

[The above article was prepared more than six months since, and we are reminded of its importance just now when government is about laying a national tax on such property as is here spoken of. Our state appraisers may also gather some useful hints from Mr. Flagg's paper. We know that improper valuation has been given to horticultural property, and nurserymen and gardeners taxed for improvements which have no other value than the simple embellishment of their grounds.—ED.]

THE CUCURBITACEOUS PLANTS.

BY THE LATE DR. T. W. HARRIS.

It is well remembered by all who take an interest in the history and introduction of our principal vegetables, that the late Dr. Harris, the well-known entomologist, whose work on "Insects Injurious to Vegetation"—now being republished

under the supervision of the State, in a new form, with beautiful illustrations—has rendered such signal service to cultivators, was deeply interested in the study of our Cucurbitaceous plants, and was about preparing and publishing his observations just previous to his death. We found accidentally among our correspondence a letter from the Dr. at the time he was making his researches, and which, for reasons then pertinent, were not intended for publication. But as his observations were never completed or published, we think the letter quite too valuable to remain unknown, and therefore present it to our readers. Whether any one will feel sufficient interest to follow up the subject, is doubtful, and as a matter of scientific investigation upon a valuable class of vegetables, we think it well worthy of attention. Perhaps it may bring to light information which may hereafter be useful.—ED.

During the last two years, I have repeatedly tried to get an *authentic* specimen of Commodore Porter's Valparaiso squash, but have failed to find one, or to obtain it from seed. Last spring I sent to your store for seeds, and received some by this name,—but they did not produce the *genuine* fruit, such as I remember to have seen it some fifteen or twenty years ago. I have a particular object in wishing to see it,—or, instead thereof, to obtain an accurate description of it, (including the fruit stem, also, which may afford important characters,) and a statement of the year when it was first introduced into this country, and through whom the seeds were distributed. It is my belief that the Autumnal Marrow squash, brought into notice by Mr. Ives of Salem, is a variety of the fruit in question;—and also that the Valparaiso squash will turn out to be the *Cucurbita mammeata*, described as a native of Chili, by Molina, in 1782. Last spring I planted some seeds which had been bought for those of the "Mammoth pumpkin,"—the *Cucurbita maxima indica* of the old botanists, also called *Potiron*, or Spanish pumpkin. They produced not a *pumpkin*, but two *squashes*, probably varieties (for there were two sorts) of Porter's Valparaiso squash. One of them was round, or pumpkin-shaped, and yellow; the other turbi-

nate, and blue-green, mottled with orange. Both were very large fruits, with the same kind of fruit stem as the Autumnal Marrow squash, and likewise with the peculiar nipple at the blossom end that is found in the Autumnal Marrow, and that characterizes and gives name to Molina's *C. mammeata*.

Much obscurity and many errors rest in the history and nomenclature of Cucurbitaceous plants, particularly of those popularly called pumpkins and squashes. It has been my good fortune to clear away some of these, by a laborious examination of the Greek and Latin authors, ancient botanical works, and voyages of discovery to America. My labors, which have continued at odd intervals during the past two years, though not completed, enable me to state that these fruits were not the *pepones* and *melopepones* of the Greeks and Romans, that they were not known to the ancients, that they were not natives of India, that they did not begin to be known in Europe before the discovery of America, and that they are natives of America; all which statements are directly the reverse of the accounts concerning these fruits in botanical books. My attention, during the same period of time, has been directed to a careful botanical examination of the characters of all the kinds that I could raise myself, or find in the neighborhood,—with a view to determine the peculiarities of species and varieties. There are still several kinds that are known to me only by name,—such as the Acorn squash, (probably a summer squash,) mentioned in Russell's catalogue in 1827; the Negro-head, and others. Many kinds are cultivated in the south of France, and twice, without success, have I sent for seeds to friends in Paris. I am expecting seeds from Constantinople, from our dragoman, Mr. Brown, who wrote to me that they would be forwarded this autumn. From Valparaiso I hope also to obtain seeds of the chief varieties cultivated there. When these seeds come to hand, I shall request you and other horticultural friends to give some of them a trial on your grounds, in order that the botanical characters of the plants and fruit, as well as the eating qualities of the latter, may be tested and recorded.

It appears to me that these fruits may be divided into three natural and distinct groups:—

1. Summer squashes, (*C. melopepo*, *C. verrucosa* of modern botanists, *C. ovifera*, &c. &c.) having, when ripe, a hard woody rind, and whitish spongy pulp, with small flat seeds; (carpels in the *young* fruit at least five in number, with five stigmas.) Fruit stem *clavate*, long, *5-grooved*. Leaves more or less deeply 5-lobed. Tendrils often abortive. These fruits are fit to be eaten only in summer, and while they are young and tender, or *unripe*.

2. Pumpkins and our old winter squashes, (*C. Pepo*, *C. maxima*, and other species not named in botanical books,) having, when ripe, a leathery (never woody) rind, and succulent orange-colored flesh, eatable throughout the winter. Seeds large, but not very plump, (carpels rarely more than three, stigmas the same.) Fruit stems as in the summer squashes, and leaves often deeply 5-lobed. Tendrils never wanting. Rootlets springing from the joints of the prostrate stems.

3. Valparaiso? squashes, Autumnal Marrow, and several others, (*C. mammeata*, &c.) Rind and flesh as in the 2d division. Fruit stem short, thick, nearly cylindrical when growing, *not* 5-furrowed, but longitudinally and irregularly wrinkled. A tubercle at the blossom end of the fruit, formed by the indurated base of the pistil. Leaves rounded or heart-shaped, nearly entire, or only indistinctly lobed, (unless by mixture with fruits of the 2d division.) Tendrils never wanting. Seeds large and thick or plump; carpels and stigmas usually only three in number—in one new species four are often found.

Dr. Gray, to whom I have explained my method of dividing these fruits into these groups, agrees with me in considering the characters assigned to them as important and striking; and they certainly have not before been thus indicated. This is one step towards a determination of what should constitute true botanical species.

Now, if you will help me to settle the history and characteristics of the true Porter Valparaiso squash, you will much oblige me.

ARBORICULTURAL NOTICES.

NEW SHRUBS AND PLANTS FROM JAPAN.—We have already given a very full account of several new hardy or half hardy shrubs and trees, introduced from Japan by Mr. J. G. Veitch, Jr. It is perhaps not well known that Mr. Fortune is in Japan, collecting plants on his own account, and has sent home to Mr. Standish, nurseryman, quite a number of new things, and in such fine order that three days after their arrival specimens were exhibited at the late grand show of the Royal Horticultural Society, where they attracted unusual attention. Some of them will undoubtedly prove hardy in our climate, and all are so highly ornamental, either as half hardy or greenhouse plants, that their introduction to our gardens must be hailed with great pleasure. We copy the entire report upon these plants:—

Among the foremost exhibitions as regards the interest attaching to their production, were several Japanese plants sent home by Mr. Fortune, and now in possession of Mr. Standish. These plants, though they had been but a few days in England, were as fresh and healthy-looking as though they had all their lives been revelling in the pure air of Bagshot, and had never known the discomforts of a long sea voyage. Among them was the *Sciadopitys verticillata*, to which we have recently called attention—a pair of nice bushy plants in perfect health, a foot high, showing the aspect presented by the long linear blunt-ended foliage of this fine conifer, and also its peculiar whorled arrangement. This received, as it merited, one of the highest awards given in the class of “Hardy Ornamental Plants: new species,” under which it was shown. Some of the older leaves on these young specimens measured three inches in length. There was also a fine variegated variety of *Thuja dolabrata*, apparently of a lax and spreading habit, the branches flattened and glaucous beneath, very much resembling those of some of the free-growing kinds of *Lelaginella*; this variety differed from the ordinary form in having its twigs freely blotched with white, producing a pretty and well-marked variegation. *Retinospora*

obtusa was another of the group, a nice little bushy specimen, with flat flabellate dark green spray, which, from the small size of its foliage, had a good deal of general resemblance to some of the smaller circinate species of *Selaginella*. Of this species there were both green-leaved and variegated-leaved forms, the latter being blotched with white. Another very interesting species was the *Aucuba japonica*, in its original or green-leaved state, both male and female plants, the latter producing orange-colored, oblong-ovate berries, about the size of the pomes of the large-fruited species of *Cratægus*.

There were many other good-looking things in this Japanese group, but about which more information and experience as to their hardiness is required. For example, there was a broad-leaved "Eurya," with moderate-sized, elegantly acuminate camellia-like foliage, broadly margined, and more or less blotched inwards with white. Also *Bambusa variegata*, a pretty tufted striped-leaved grass, apparently dwarf, and perhaps useful in formal gardens; two variegated forms of *Podocarpus*, one with broad ovate shining leaves variously striped with white, the other with the leaves linear-lanceolate, and more sparingly striped; a *Euonymus* something like *E. japonicus*, but smaller, and with a central yellowish blotch on the leaf; *Osmanthus aquifolius*, a nice-looking oleaceous shrub, with neat flat holly-like sharply-toothed or sinuately-spinose leaves, which in one form were green, and in another margined and marbled with creamy white; a very pretty little variegated *Buxus*, with remarkably short obtuse sometimes retuse or obcordate leaves of about half an inch in diameter; an *Illicium*, with gray marbled leaves, slightly edged with white; a variegated *Thea*; a variegated *Lusangua*-like *Camellia*; and variegated forms of *Rhaphis*, of *Gardenia radicans*, and of *Daphne*. There was also in the same group a pretty looking plant, of which more must be known, exhibited as a species of *Retinospora*, shown also by Mr. Veitch as a *Cryptomeria*, a plant apparently of spreading growth, with the branches terete and leafy all round—distinguishable therefore from the *Retinospora* and *Thujopsis* already mentioned by a feature analogous to the difference which exists between the true species of *Lycopodium* and those now referred to *Se-*

lagnella; the leaves of this plant are small, obtuse green scales, which produce a kind of papillate appearance on the branches.

To the same group of hardy ornamental plants, Messrs. Veitch & Son made some very interesting contributions; and foremost among them some fine young columnar plants of the *Libocedrus tetragona*, of which an account has been given. This received a first-class award. It was accompanied by a distinct-looking species of *Abies* of the *Picea* section, imported from Vancouver's Island, and found to be perfectly hardy; by a dwarf *Thuja pygmaea* from Japan, also hardy, a cushion-like tuft of dense green spray; by a Japanese *Euonymus*, with neat elongately-ovate slightly-toothed leaves, margined and blotched with white; and by the handsome purple-leaved *Acer japonicum polymorphum*, which latter was also exhibited by Messrs. A. Henderson & Co. Messrs. Jackson & Son contributed, in addition to a species of *Buxus* from Nepal, with obtusely elliptic-lanceolate leaves nearly or quite two inches long, a *Juniper* from the mountain ranges of Asia Minor; this, which is the *Juniperus drupacea* of botanists, was an elegant spiny-leaved species, and appeared to be a plant of free growth, and from its habitat is possibly hardy.—(*Gard. Chron.*)

THE HARDY HYDRANGEAS.—These are all very handsome and desirable hardy ornamental shrubs, which deserve a place in every collection. We have been delighted with the appearance of two of them, the *H. quercifolia* and *H. nivea*. The former has large showy foliage, resembling an oak leaf in shape, and large panicles of white flowers; *H. nivea* has medium sized, ovate leaves, being green above, and covered beneath with a silvery pubescence, which is highly attractive; it also has large cymes of white flowers, which, though not so ornamental as the flowers of *H. quercifolia*, are very showy. They are both hardy, grow freely, and should be found in every complete collection of shrubs. Other well known and more common species are decided ornaments of our gardens.

PRINOS GLABER.—This very handsome native evergreen shrub is rarely seen in our gardens. It is perfectly hardy, easily cultivated, and forms a compact bush, verdant the year

round. As a neat, hardy evergreen shrub, there are few more which equal it.

THUJOPSIS BOREALIS.—A correspondent from the interior of New York State writes us, that his plant, set out in the spring of 1860, wintered finely, having only a few hemlock leaves thrown over it. It proved entirely hardy everywhere in Great Britain the last severe winter, where the *Cryptomeria*, *Deodar* cedar, and other hardy pines perished. All our plants, of which we had a number quite unprotected, are perfectly fresh. It bids fair to become a splendid acquisition.

CUPRESSUS LAWSONIANA.—This fine evergreen, equal if not superior in beauty to the *Thujopsis*, proved hardy the last winter, as it did in the winter of 1859-60. It has already made a rapid growth, and, from present appearances, must be set down as quite hardy. With the *Thujopsis*, it will add more to our stock of hardy evergreens than all that have previously been introduced.

HOW TO PRESERVE FLOWERS.

FROM THE GARDENERS' CHRONICLE.

NEXT to the possession of a good garden with an abundance of flowers, where we can see them growing in all their beauty, is the possession of fragrant blossoms, fresh with the dew of early morn, filling the drawing-room or parlor with their odor, and delighting the eye with their varied beauty. The former all cannot have: the latter, in a smaller or larger way, everybody can enjoy, especially in the summer season. There is, however, unfortunately one bar to their full enjoyment; that is, their speedy withering and loss, rendering them anything but beautiful soon after they are cut. But for this, thousands would readily purchase the neat bouquets which are offered for sale in such abundance in our principal cities.

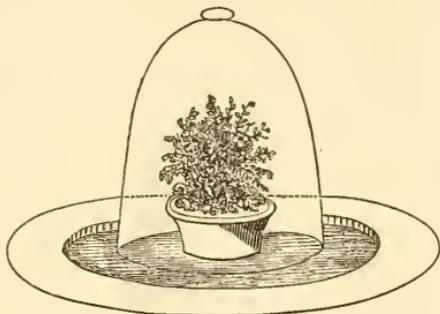
It is therefore really a boon to know how to keep flowers in all their freshness and beauty for a long period, especially in our dry climate, where the influence of the air soon exhausts

them of all moisture, and causes them speedily to droop. A simple and cheap contrivance to obviate this has been wanted by many lovers of flowers, who rarely have the opportunity to see them upon the plants, and who rely upon bouquets for the decoration of their rooms.

Since the introduction of Wardian cases these have suggested the means of preserving flowers as well as plants, and some of our amateur friends have made use of them to keep fresh bouquets upon their tables the year round. But it is only recently that we have seen this method brought before the public. A recent number of the *Gardeners' Chronicle* tells how easily this is done, and we improve the opportunity to give the desired information, with the illustration of the plan, (FIG. 20), assured that it will afford much pleasure to many lovers of beautiful flowers:—

Now that dry weather has set in, and cut flowers refuse to preserve their freshness when gathered, a few words upon the subject may be useful to even those who believe themselves perfectly acquainted with it. We suppose that everybody now knows that flowers fade because they lose the water that plumps out their tissues—that water being in reality the WATER OF LIFE. Plants, like animals, have an insensible, that is to say unobservable, perspiration, which is made good continually by their power of absorption. This absorption takes place principally through their roots, but largely also through their skin, for a skin they have as well as ourselves, though many, it is to be feared, do not know it to be so. All then which it is necessary to do, in order to keep cut flowers fresh, is to prevent their loss of water in consequence of insensible perspiration, and to give them the means of replacing the waste which will inevitably occur by taking up water through their skin in the form of vapor or otherwise. That is the rationale or reason of the matter, as we long ago showed by the little apparatus now reproduced, consisting of a bell glass placed over flowers, and having its rim dipping into water. It is clear that so long as the rim of the bell glass is covered by water, so long the air beneath the bell will be so damp as to affect the insensible perspiration of the flowers.

A contrivance like this, however, although suited to a sitting-room, or any other place at rest, cannot be employed elsewhere; and consequently when cut flowers have to be carried in the hand, or be sent to a distance, some other arrangement becomes necessary. The quantities of fresh flowers that are continually reaching London from the distant country seats of the wealthy classes, show that good gardeners know well enough how to manage. Our remarks are therefore not intended for them, but for the crowd which does not know; and we confine ourselves to such mistaken methods as come within our own experience. Those indeed who doubt the necessity of our remarks should see the state in which flowers are frequently reaching us.



20. BELL GLASS FOR PRESERVING FLOWERS.

Many suppose that if flowers are guarded by *something soft*, they run no risk of injury; and so they wrap them in cotton wool, or nice dry moss. Of all contrivances this is at once the commonest and the worst. Cotton wool is one of the driest materials we know of, and moss is another. When cut flowers are placed among dry cotton wool the latter sucks out of them what water they can give up, and distends itself by emptying them. The same of moss. Both too are dirty substances sticking to the surface of flowers, from which they cannot be easily detached. A favorite protection to a bouquet is a clean dry cambric pocket handkerchief, wrapped tenderly round it; this is almost as bad as cotton wool, and for the same reason, except that it does not become entangled among the flowers. A very clean, very dry deal box, pierced with air-holes, is employed by some, the flowers being wrapped in

dry tissue paper and laid loosely one over the other. Dryness, again, in this case asserts its power, and still the flowers die, the currents of air that of necessity set through the holes adding greatly to the mischief. It will be easily understood that errors of the same kind may be committed in other directions. What then should be done?

It is clear that the grand object is to stop their insensible perspiration, or at all events to reduce it as low as possible. This is to be effected by securing a damp and tranquil atmosphere, as is well shown by the freshness of flowers carried in a man's hat in hot weather; they do not fade, because the dampness caused by perspiration from the head effectually stops all perspiration from the flowers themselves. When sent by post nothing is better than wrapping them in oiled paper; when carried otherwise a piece of wet sponge fastened inside a wooden box, or layers of wet brown paper, or wet flannel as a lining to the box, or freshly gathered cabbage leaves with their under side placed next the flowers, are unobjectionable. If the box is of tin, well secured at the lid, then a source of constant moisture is less requisite, for the leaves and flowers themselves will form an atmosphere of sufficient dampness for a short time. Another method which answers extremely well when flowers are gathered in dry weather, is, as soon as they are cut, to throw them into a bag, like a carpet bag, made of mackintosh. If the snap of such an article closes well, flowers will remain fresh all day long in a broiling sun, as some botanical travellers well know. The reason why such flowers are preserved is still the same; the air around them is damp. Tourists who hunt after wild flowers, or ferns, should provide themselves with a bag of this description.

If we could hope that these hints would be remembered we should see no more instances of misapplied care producing an effect exactly the reverse of what is intended.

YUCCA ANGUSTIFOLIA.

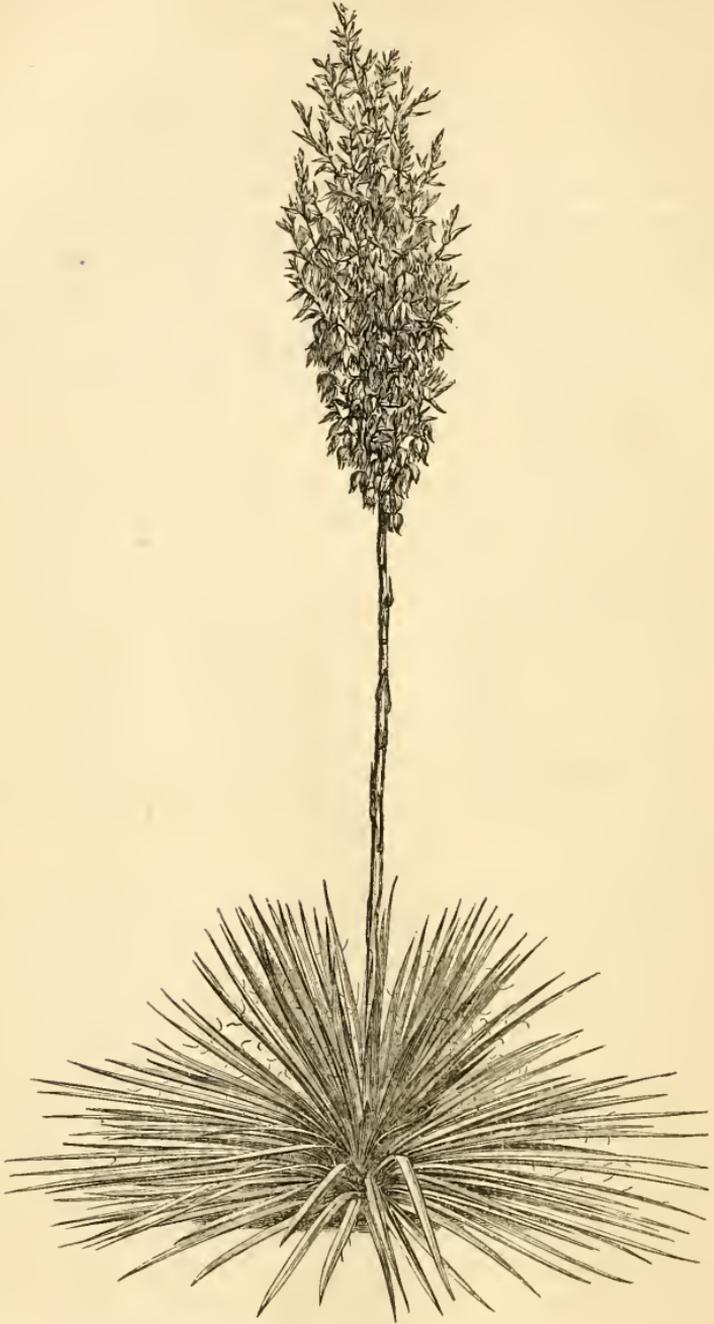
BY THE EDITOR.

THE *Yuccas* are such picturesque and decorative objects of the garden, that we continue our account of the different species and varieties commenced in our last volume. Fortunately we are enabled to avail ourselves of the labors of M. Carriere, a distinguished French cultivator and botanist, who is publishing a series of articles in the *Revue Horticole*, describing all that have been introduced into France, and figuring several of the most distinct. This will enable us to distinguish and identify such as our gardens contain, or which may be added thereto.

Though mostly natives of the United States, and especially Georgia and the Carolinas, where they grow in immense quantities, but few kinds have been introduced to cultivation; indeed, till within a few years, none but the *filamentosa*, a native of Virginia. Now that more interest has been created for this showy tribe, we hope they may be collected in the South, and the several varieties which are so common become more abundant in our gardens. We have several plants sent to us from Georgia, and there are no less than three or four species or varieties one of which we believe to be the kind now under notice.

The *Yucca angustifolia* of Pursh, (FIG. 21), (*Yucca albo spicata* of French gardens,) is a caulescent species, having an elevated stem twelve or fifteen inches high, swollen from the base. The leaves are slightly channelled; the older ones flattened, about twenty inches long and one inch wide, dry at the ends, and carrying several filaments. The younger leaves are erect and bordered with a white line, with several filaments, though usually bare towards the summit, which is terminated in a very short, hard, yellowish point. The stem attains the height of six or seven feet, glabrous. The lateral branches are erect, and eight or nine inches long, bearing ten to fifteen greenish white flowers each. The buds are small and angular, and are sometimes inserted in twos or threes, though generally solitary.

This species usually flowers the latter part of July. It



21. YUCCA ANGUSTIFOLIA.

belongs to the section, dasyliroideæ. It is not a very robust-

growing plant, and should be wintered in the greenhouse. It is also more difficult to increase than some of the species, as the roots throw out very few offsets. It is, however, well worthy of all the attention that may be required to bring it to a flowering state. Like the gloriosa and others which will not stand our frosts, it is admirably adapted, from its erect and stately habit, for the decoration of lawn when grown in pots or ornamental vases; either in or out of bloom, it forms a highly picturesque object.

THE CULTIVATION OF NATIVE FLOWERS.

BY MRS. ISAAC CLEMENT, MECHANICSVILLE, N. Y.

27. *LILIUM CANADENSE*, Nodding Meadow Lily. Not quite so gay as some of the exotic varieties, and too well known to need description, but well worthy of cultivation, as it is perfectly hardy, and the flowers increasing in number yearly with good cultivation; root, when old, a long scaly bulb resembling an ear of corn; easily transplanted; found in low meadows. July and August.

28. *LILIUM PHILADELPHICUM*, Upright Meadow Lily. Not so plenty here as the last; found on upland, growing two feet high; requires the same cultivation, but is not so handsome; worthy of cultivation in a collection of native flowers; color of flowers dark orange, spotted inside at the base; easily removed. June and July.

29. *ASCLEPIAS TUBEROSA*, Butterfly weed. A very handsome hardy perennial, plenty in some places, seems to like sandy soil, but does well in any situation not too wet; root large and fleshy, rooting very deep in the ground; it is best to plant the seed where it is wanted to grow; the plant will increase in size, sending up annually several stems crowned with corymbs of bright orange-colored flowers, which open in succession for some time; the root is medicinal. Aug. and Sept.

30. *ASCLEPIAS INCARNATA*, Rose-colored Silk weed. Another hardy perennial belonging to the same order, not so

handsome as the last, but easily transplanted, as the root is fibrous; found in wet ground, but will grow in any situation; umbels of flowers purple, very dark before opening; well worthy of cultivation. There are other kinds here, but not worth cultivating, as the roots creep in the soil and root so deep that they are a pest to the farmer wherever they obtain a lodgment by the seed being carried with the wind. July and August.

31. *PRENANTHES ALBUS*, Lion's foot. A tall, coarse growing plant, found here in open woods, with heads of pendulous cream-colored and brown flowers; looks well in a back ground, as in such situations only the heads of the flowers are seen; easily cultivated. August.

FLORICULTURAL NOTICES.

NEW SPECIES AND VARIETIES OF THE RODANTHE.—The *Rodanthe Manglesii* is familiar to most cultivators as one of the prettiest annuals, forming masses of delicate pink flowers which remain in bloom a long time. Some new and valuable additions have been made by the introduction of a new species, and the raising of seedlings by fertilization. They are thus noted:—

At the last meeting of the Florist Committee of the Royal Horticultural Society, Mr. Thompson of Ipswich exhibited some charming new *Rodanthes*. One was pure white; another called *maculata*, with the characters of the old *Manglesii*, but taller, more robust, and somewhat larger in the flower head, was distinguished by having the beautiful involucre leaves stained with deep crimson at the base, so as to produce the appearance of the yellow disk being set in a rich dark ring.

The third, a perfect gem, had been sent from Limestone Hills, Champion Bay, Western Australia, by Mr. Jas. Drummond, under the name of *R. atrosanguineum*. Although the flower heads were smaller than *R. Manglésii*, they have the great merit of possessing a crimson centre instead of a yel-

low one, and the plant throws up from the very base its flowering branches without stopping till they form a perfectly flat topped mass. The effect is exceedingly pretty, and the plant promises to be one of the most elegant annuals of its class. Mr. Thompson has favored us with the following memorandum respecting the species:—Out of doors it grows about seven or eight inches high, and will make a neat edging, for which it is more suited than *Manglèsi*, being more bushy and tufted. The specimens vary, however, in this point, and also in the intensity of the color of the disk, as well as in the length of the inner bracts forming the ray. Some of the flowers are quite an inch across. Both *maculàta* and *Manglèsi* seem to require topping, but the *atrosanguineum* does not.

NEW RACES OF CHRYSANTHEMUMS.—We have already recorded the introduction of many novelties from Japan. We have now to notice the existence and introduction into Great Britain of entirely new races of chrysanthemums, quite unlike either the double, daisy-flowered, Pompone, anemone-flowered, or other well known sorts. Mr. Veitch has sent home two very distinct forms, evidently the representatives of many a beautiful production yet unborn.

In one form, the peculiarity consists in the ligulate corollas being all, or nearly all, drawn out into extremely narrow sharp terminations now and then inclined to fork. These are called, by Dr. Lindley, **STAR CHRYSANTHEMUMS** from the starry aspect of the flowers, which, though certainly not beautiful, are valuable from their peculiarity. The other form is very different, being close-headed, incurved, with all the corollas divided into two irregular unequal lips. These are called the **DRAGON CHRYSANTHEMUMS**, in allusion to their ugly yawning jaws. The flowers of this class are very full, have more the appearance of the Pivone asters than chrysanthemums.

They are important acquisitions, and by the aid of hybridization will no doubt add other forms, and combinations of forms, both novel and beautiful, to this showy autumnal flower.

YUCCA ALOIFOLIA.—This gigantic species, growing ten to fifteen feet high, has just flowered at the Botanic Garden in

Cambridge. The plant is full ten feet high, surmounted with a dense spike of flowers about three feet long. The flowers individually are not so large as *filamentosa*, but much thicker on the stem, and are white on the inside and purplish on the outside. The plant is probably ten or fifteen years old.

NEW PLANTS.—At the late exhibition of the Royal Horticultural Society quite a number of new plants were shown, of which the following account is given in the report:—

Messrs. Veitch & Son showed a curious and pretty, but rather small hothouse herbaceous plant, called *Stenogasta concinna*. It forms a tuft of little distinctly-stalked, roundish-cordate, toothed leaves, from among which it produces numerous peduncles, each bearing a solitary flower, with a long curved tube, purple on the upper side, and white below, and a five-lobed limb, of which the three lower segments are larger, white edged with purple and purple spotted; the base and the two upper are wholly purple, darker at the base. These flowers are very pretty, and the whole aspect of the plant is pleasing, but it is rather wanting in size. Another plant, useful for out-door gardening, being quite hardy, and which was also exhibited by Messrs. Veitch, was *Mimulus cupréssus*, a dwarf South Chilian herb, of about six inches high, with small ovate leaves, having a few coarse marginal teeth, numerous flowers of a bright coppery or orange red; the calyx of this pretty plant is spotted with purple and sharply five-angled so as to be almost five-winged, the uppermost of its five segments being longer and broader than the rest. Messrs. Veitch also contributed a little Chilian species of slipper-wort called *Calceolaria bellidifolia*, a small plant of a creeping pennyroyal-like habit as to its stems and foliage, the flower-stalks growing up about six inches high, and bearing numerous small bright yellow flowers, with a concave lower lip, and an open throat dotted with a few short red lines. M. Linden of Brussels contributed, along with several other plants not in bloom, a good plant of *Campylobotrys pyrophylla*, which, though inferior to *refulgens*, is nevertheless an ornamental plant as well as a distinct species; its deep olive green leaves, which are covered with red hairs and suffused with red, were nine or ten inches long, obovate and narrowed towards the

base ; the flowers small and dull red. To this group Messrs. E. G. Henderson & Son contributed a sample of the pretty *Convólulus mauritánicus*, a trailing herb of slender habit, adapted for growing in suspended baskets, and furnished with ovate or oblong pubescent leaves and abundant flowers of moderate size, and a bluish-like or pale purple color. M. Linden also sent *Pteris rubronerva*, which is less strikingly dissimilar in form from sorts already cultivated ; and the beautiful white ribbon fern, *Pteris crética albo lineata*, which was also there from several other exhibitors, and is a fine decorative plant. M. A. Verschaffelt sent *Campylobotrys Greisbreghtii*, which is remarkable for its four-winged stems, the leaves being of a shaded velvety olive green, with pale ribs ; also, *Begonias imperialis* and *dædalia*, both new and very handsome species.

CEREUS MACDONALDII has again flowered in our collection, and much finer than last year. The flower measured *thirteen inches in diameter* from tip to tip of the sepals. It is certainly a very showy and desirable species, not so highly colored in the sepals as *C. grandiflorus*, but in size very much larger. It blooms at night like the latter.

GLOXINIA-FLOWERED FOXGLOVES.—The old and stately fox-glove or *Digitalis* has not been neglected in the improvement of our showy plants. Varieties have been produced which have the large open corolla of the *Gloxinia*, which they very much resemble, with distinct and conspicuous large spots, and of all shades of color. We know of no plants which have a more splendid effect than the improved varieties ; no garden should be without them. It is one of the most marked improvements in an old but very effective garden plant.

DISA GRANDIFLORA.—The cultivators are in rapture over a fine specimen of this new orchid, exhibited at the Royal Horticultural Society's Show in July, "one of the most unusual and most glorious examples of the diversity of the floral world. Though not yet introduced to our gardens, its magnificence and the ease with which it is cultivated, now that a skilful gardener has discovered the true secret, will induce our amateurs to add such a gem to their collections.

There grows at the Cape of Good Hope a marvellous plant,

called *Disa grandiflora*. When this daughter of the earth was first brought prominently under the notice of modern English cultivators, the following language was employed, in one of the scientific works, to describe it:—

It is the finest orchidaceous plant found at the Cape of Good Hope, and we may almost add, in the world, whether we regard the large size of its regal flowers, or the brilliant colors by which they are accompanied. The magnificent specimen from which the accompanying drawing has been made, was sent in a dried state from the Cape, by Mr. Harvey, who remarked that the specimen is the largest he ever saw, the stem being $2\frac{1}{2}$ feet high, and the flowers $5\frac{1}{2}$ inches from tip to tip of the expanded sepals. It occurs in various parts of the Colony, but principally on Table Mountain, where it is so common, according to Mr. Harvey, that every stream is literally bordered with it in March. Sir John Herschel tells us that the temperature of the situations where it is found is occasionally as low as $31\frac{1}{2}^{\circ}$, and also occasionally as high as $96\frac{1}{2}^{\circ}$. Its habitat is on the margins of pools of standing water, the drainage of the boggy slopes of the mountains, wherein its roots are immersed. These are dry or nearly so in summer. In such localities it is of course frequently involved in the dense mist of the clouds, which, in the hottest months, often cover its habitation for a week or a fortnight uninterruptedly. Alas! that I must add that it has hitherto proved uncultivable. It occasionally indeed is imported, and in the year 1825 it even flowered at South Lambeth, near London, in the garden of Mr. William Griffin, a zealous and well-known collector of bulbous and other plants. But it soon disappeared, and no other English specimen seems to have been put on record. This was in 1841; since then it has been introduced and cultivated by Mr. Leach of Clapham Park, who has succeeded in blooming it to perfection, the specimen exhibited by him having twenty expanded flowers. After many trials and careful observation, Mr. Leach says, "there is no reason why this very beautiful species should not be found in the greenhouses of every one disposed to bestow the same care upon it which he gives to his geraniums and similar plants." Mr. Leach gives the mode of doing this as follows:—

With regard to the *Disa*, it should be borne in mind that it is a mountain and a bog plant, which means that it abominates a close stove or orchid house, and that it delights in water. The other treatment is as follows: when done flowering let the pots be plunged into ashes, in the open air, fully exposed to sun and air; there let them remain, watered moderately in dry weather, with a hand-light over them in long-continued rain, and to protect them from frosts, till October or November, when they should, if necessary, be shifted into larger pots and removed into the greenhouse, where, just protected from frost and near the glass, syringed over twice a day, the young offsets will continue to grow, and the parent bulbs will again start up. In February, a little increase of heat may be given, and in March and onwards a syringing, even three times a day will not be too much; and the natural increase in the temperature will then suffice to bring up the flower stems in May and June, at which time a little more heat in a warm and airy conservatory will do no harm.

At the Cape, I am told, the *Disa* dies down—here I find that it does not require to do this; the young offsets coming up long before the old plant gives any sign of taking the species of rest produced by drought. I am further informed, that at the Cape, while the open country is burnt up with the rays of the hot sun, Table Mountain enjoys the benefit of the celebrated table cloth (of clouds) with which the southeasters cover it during the summer season; and I conclude that the *Disa* in this way has plenty of moisture at its roots during the dry season, while at other times it luxuriates in water.—(*Gard. Chron.*)

585. *CAMPYLOBOTRYS GHRIESBREGHTII* *Nob.* GHRIESBREGHT'S
CAMPYLOBOTRYS. (Cinchonacæ.) Mexico.

A hothouse plant; growing two feet high; with beautiful foliage; increased by cuttings; grown in light peaty soil. Illustration *Horticole*, 1861, pl. 279.

This is one of the recent additions to ornamental-foliaged plants, something in the way of the *Cyanophyllum*, but not quite so large. The stems are quadrangular, and the leaves are ovate, lanceolate and acuminate, velvety, of a rich olive green above, shaded towards the border with bronzy purple reflecting a metallic lustre. The midrib and nerves are clear

white; the under side rich purple. There are three or four species, all very handsome, but this is said to be the best. The largest leaves measure about twelve inches long and five broad.

This fine plant as well as others of the same family were introduced by M. Ghriesbreght, who found them in various parts of Mexico. They generally grow in shady woods, and flourish best in a warm house shaded from the sun, and the air kept damp by frequent syringing. To the section of ornamental-foliaged plants they add a distinguished feature. (*Ill. Hort.*, May.)

586. CUPHEA JORULLE'NSIS *Kunth*. THE JURILLE CUPHEA.
(Lythraceæ.) Mexico.

A greenhouse plant; growing two feet high; with orange and yellow flowers; appearing in autumn; grown in light rich soil. *Illustration Horticole*, 1861, pl. 284.

This is the well known *Cuphea eminens*, which has heretofore been cultivated in our gardens, condemned by some and praised by others, according as its merit was developed by proper cultivation. We think it a very handsome plant, blooming abundantly in late autumn if removed to the greenhouse, where its bright orange-colored tubulous corols have a neat appearance.

It grows freely bedded out in summer, and if forwarded early will often bloom before frost. But usually it requires the treatment given to the chrysanthemum, when it will bloom well all the autumn. (*Ill. Hort.*, May.)

587. BOUGAINVILLEA SPECIOSA.

This magnificent greenhouse climbing plant of which so much has been said is figured in the *Florist*, and is undoubtedly quite equal to the representations of its beauty, which depends not upon its rather small and yellowish flowers but upon the large mauve colored or purplish red *bracts* which clothe the flower stems wherever they appear. In April last the plant from which the drawing was taken covered 400 feet of glass, and the terminal shoots hung down loosely many of them a yard in length. Nothing could be handsomer; in the slanting light of the evening sun the whole of the leafy cano-

py reflects on one side an almost glowing sheet of color, while on the other, partly in the shade, it has more of an amethystine hue.

It requires similar treatment to the *Bignonia venusta*. Planted out in rich light soil, grown well in summer, and kept rather dry in winter, it flowers profusely all the spring. It likes a warm aspect, and a well drained border or a very large pot. (*Florist*, June.)

588. *TILLANDSIA RECURVIFOLIA* *Hook.* RECURVED-LEAVED
TILLANDSIA. (Bromeliaceæ.)

A hot-house plant; growing a foot high; with white flowers; appearing in spring; increased by division; cultivated in light leafy soil. *Bot. Mag.*, 1861, pl. 5246.

A rare and pretty species of *Tillandsia*, introduced from Rio to the Kew Gardens. It is dwarf in habit, with glaucous recurved leaves and small white flowers, which are surrounded with bright rose-colored scales or bracts. It forms a pretty addition to stove collections. (*Bot. Mag.*, May.)

589. *MALORTIEA SIMPLEX* *Herm Wenland.* SIMPLE-LEAVED
MALORTIEA. (Palmaceæ.) Costa Rica.

A stove palm; growing six feet high; with whitish flowers. *Bot. Mag.*, 1861, pl. 5247.

A very graceful palm, new and undescribed, which was sent to Kew, from the Royal Hanoverian Garden of Herrnhäusen. It has simple deeply saw-edged leaves, with numerous panicles of small whitish starry flowers. Its whole habit is neat and graceful. (*Bot. Mag.*, May.)

590. *DRACÆNA BI'COLOR* *Hook.* BROAD-LEAVED TWO-COLORED
DRACÆNA. (Asparaginæ.) Fernando Po.

A stove plant; growing a foot high; with white and pink flowers; appearing in spring; increased by cuttings; cultivated in rich peaty soil. *Bot. Mag.*, 1861, pl. 5248.

A new and pretty species, with deep green and strongly-marked parallel nerves on the leaves and a dense panicle of flowers of a pale rose color. It grows about a foot high and forms a neat and handsome plant. (*Bot. Mag.*, May.)

591. *PARITIUM ELATUM* *Dar.* LOFTY PARITIUM OR CUBA
BAST. (Malvaceæ.) Cuba.

A stove plant; growing ten feet high; with scarlet flowers; appearing in spring; increased by cuttings; cultivated in light rich soil. *Bot. Mag.*, 1861, pl. 5245.

This is the plant from which the well known Cuba Bast is

manufactured. It forms a splendid plant, growing many feet high, with large scarlet flowers similar to the African Hibiscus. It forms a showy object in the stove, but its large size prevents its growth only in the most lofty houses. It is interesting as being the plant from which the Cuba Bast is manufactured, and also for its wood, which is hard, and when worked up and polished is called "green ebony." Where it can be grown in perfection, as at Kew, it forms a splendid ornamental object. (*Bot. Mag.*, May.)

General Notices.

PROPAGATING ROSES.—I have often heard it remarked by persons who have propagated the rose, that the Hybrid Perpetual class could not be rooted from cuttings in the winter, but that all the other classes could be. I think this is a mistaken idea; I have succeeded in propagating them equally as well as either the Bourbon or Bengal roses, which with me are the most certain to root. I put in, in the first week of December last, one hundred cuttings of the *Souvenir de Leveson Gower*, and on examining them to day I found that all but six of them have rooted well. My course of treatment is this:—I have a bed containing four inches of clean washed sand; the bottom is bored full of two-inch holes, over which is spread straw, to prevent the sand from falling through. The pipe which conducts the hot water through my greenhouse is completely boxed up under the bed, which affords a strong bottom-heat, and I have sashes over the cuttings which confine the heat that arises from the sand. I keep the cuttings moist by watering with clear rain-water, at about 70° temperature. The glasses must be kept close, only occasionally raising them to give air.

I have not only succeeded in rooting roses in this way, but a great many varieties of hard-wooded plants. It may, perhaps, be an old plan, but to me it is entirely a new one—I have never seen it used, but only adopted it, after experimenting in various ways in rooting plants from cuttings.—(*Florist.*)

HOW TO GROW BIG PEARS.—If you want to have big pears or other fruit, first work on the stalk that bears them the point of an adjoining shoot; then you shall see what you will see. So says a French amateur, enthusiastic in the fruit line. If you want big gourds just bore a little gimlet hole in their rind when the fruit is a few weeks old, and push in a long piece of cotton wick with the loose end in a pan of water. The cotton will suck up the water, the gourd will suck the cotton, and by the time your fruit is ripe you will have the largest pumpkin that ever was seen—a pumpkin, we

suppose, such as was made into Cinderella's carriage. So says some gentleman, called by an architect at Ghent by the harmonious name of a Cucurbitomaniac.—(*Gard. Chron.*)

VALUE OF THE AILANTHUS FOR SANDY SOILS.—Count Lambert, a great Russian landed proprietor living at Odessa, states that having failed for sixteen consecutive years in his attempts at fixing the deep blowing sands on his estate, by pinasters and acacias, he had at last succeeded by the aid of the tree called ailanthus. No wonder that his difficulty should have been so great, considering that the desert operated on is a foot deep in sand, resting on solid rock. Having heard something of the hardy constitution of the ailanthus, its indifference to good land, and its running roots, he eventually took to planting it on his *dunes* (Norfolcicè *denes*), and with such complete success that his shifting, unmanageable plains (Norfolcicè *brecks*), are now solidified and covered with an almost impenetrable forest, so entirely have the running roots taken possession of the land. How Count Lambert proceeded in the work of planting, does not appear, but from the expression, “on fait chaque année des *semis*,” it seems probable that he sowed the land directly. Other landholders in the neighborhood have followed his example, so that the tree has been increased “prodigiously.” Measures, say M. Guérin-Méneville, are now taking to introduce among the plantations the new silkworm from Japan, which feeds on ailanthus (see *Gard. Chron.*, p. 508). Here is another great matter, how to make sea banks impenetrable, practically solved. It is to be hoped that planters will at once try what can be done with ailanthus on our own sandy, shifting shore, among the “Manum” banks.—(*Gard. Chron.*)

PLANTS FOR EXHIBITION.—There appears room for a new class of cultivated plants in our exhibitions—that of trained climbing plants, which, if artistically carried out under good cultivation, would prove an interesting feature, and one which in some degree would break into the mixed stove and greenhouse class, by showing the plants under a new form, interesting in itself, and under which the plants might assume a great variety of outline, through the agency of the different shaped trellises employed.

When it is considered that a number of showy plants are necessarily excluded from the tables of our exhibitions, solely through the difficulty of training them so as to harmonize with other specimens, the managers of exhibitions should make them into a class by themselves, stipulating that the gracefulness in their outline, and natural style of training should have weight with the judges, just as much as the mere value of the plant, or its merits as regards cultivation. We might then expect to see the different species of *Bignonia*, *Brachysema*, *Hardenbergia*, *Lapageria*, *Passiflora*, &c., among greenhouse plants; and *Allamandas*, *Ipomæas*, *Floya*, *Jasminum*, *Echites*, *Dipladenia*, and *Combretum*, exhibited in something like their natural form instead of being tied into balloons and globes, as now generally seen. I am of opinion that if a class was formed, with prizes for the best twelve or six climbing plants, something both tasteful and novel would result in a very short time.—(*Florist.*)

ASPIDISTRA ELATIOR.—In a late number of Van Houtte's *Flore des Serres*, a little known plant called *Aspidistra elatior* is strongly recommended for the decoration of sitting rooms. It is represented as capable of living there for any length of time without suffering in the smallest degree, and being indifferent to temperature, a high and low one agreeing equally well with its constitution.

The beauty of the plant consists wholly in its leaves, which are two feet long by three inches broad, leathery, bright green, and striped more or less with white. The flowers are insignificant. All that is necessary to preserve its beauty is to keep it always in the shade, and tolerably dry in winter, at which season wet is fatal to it. As to its soil, it requires a light, substantial mixture of peat and rotten leaves, with plenty of water in hot weather when it is growing.—(*Gard. Chron.*)

RIPENING EASTER BEURRE' PEARS.—At the meeting of the Imperial Horticultural Society of Paris, on the 23d of August, 1860, Monsieur Gosse, a nurseryman at Courbevoie, exhibited Easter Beurré pears (*Bergamotte de Pentecôte*), in perfect condition. M. Gosse had kept them in a fruit-room formed in a *very dry* cellar, where there was no current of air, and wrapped them in common grey unsized French paper. He had for several years followed this plan and always with excellent results.—(*Gard. Chron.*)

LILIUM GIGANTEUM.—I send herewith a photograph of our *Lilium giganteum* which grew here last year in the open air, and was greatly admired by all who saw it. We are about twelve miles southwest of Lowestoft, the most easterly point of England. The plant is sprouting again, but will not, I think, blossom this year. I should mention that it was planted out finally in the autumn of 1858, and there it has remained undisturbed ever since. It has, however, been protected during winter by having a bee-hive placed over it, filled in the inside with cut hay, and over that was put a hand glass to throw off the wet; then in 1860 it produced a fine spike, surmounted by thirteen very fine blossoms, equal to what have been produced under glass.—R. G. [The photograph represents a very fine specimen of this plant, nearly twelve feet high, with thirteen flowers expanded at its summit, growing in the angle of a high walled garden. It is the finest we have seen, and the ingenious method of saving it from cold in winter, conveys useful advice to those who have other tender roots to shelter. In the country, old, used-up beehives can be easily had.]—(*Gard. Chron.*)

A NEW VEGETABLE.—There has lately been exhibited at several meetings of the Royal Horticultural Society, a new vegetable which promises to become a permanent institution among kitchen-garden crops. It is a cabbage in the form of Brussels sprouts. The stem is about a foot high, bearing on its summit a good size, headed cabbage of the ordinary character; but the stem is covered with small cabbages about the size of a small dessert apple, and these when cooked form an excellent dish, partaking of the flavor of a nice summer cabbage, and without the strong Savoy flavor which distinguishes the Brussels sprouts. The merit of producing this

variety is due to Mr. Wm. Melville, Dalmeny Park Gardens, near Edinburgh, and a very good name by which to distinguish it will be to call it *Dalmeny sprouts*.—(*Cottage Gard.*)

PRINCE OF WALES RASPBERRY.—I find this to be a vigorous grower, a great bearer, and to produce fruit of excellent flavor, particularly last season, the worst in this part for hardy fruit of all kinds for many years. I intend to discard all other kinds, and grow nothing but Prince of Wales. On a long row of it in which the canes were left full length, the crop was very heavy. I never shorten the canes, as I find that by leaving them full length I get great crops.—(*Gard. Chron.*)

CAUTIONS RESPECTING PACKING PLANTS.—So much inconvenience has been experienced at the Berlin Gardens in consequence of bad packing, that M. Bonché, the intelligent superintendent, has published a set of rules for the direction of correspondents. They would certainly be not altogether superfluous in our own country, though nurserymen do not in general err in this direction; we have therefore thought it worth while to give a translation of them:—

1. It is a bad practice, when a plant is packed, to take the wooden tally from the side of the pot and to put it with the plant, without first wrapping the plant in moss, as both the roots and stem are liable to be injured by its pressure. If sticks are placed in the soil in addition to the main support, they should be quite smooth, to prevent injury to the roots in thrusting them into the soil or removing them.

2. Tallies are often left against the edge of the pot without taking care to tie them. If they fall out during the journey, as is not unfrequently the case, they may injure the plant, or if there are several varieties in one package, confusion of names may easily occur.

3. When woody plants are transmitted, the hard tallies are often fixed at one end only, the other rubbing against the plant. Parchment tickets are therefore far preferable to wooden tallies, or if tallies are used they should be painted to show the names distinctly, and fixed with string to anything except the plant itself. If a stronger stick is necessary, it should be placed in the hole from whence the first was taken. If several small sticks are requisite to support a paper envelope, they should be secured in the moss and not plunged in the soil. After the plant is packed no stick should ever be thrust into the moss, as the packing may be forced inwards and injure the plant.

4. Gardeners are often stingy about packing. They not only use old moss which is partially decomposed, but they substitute hay, leaves, or other matters. If moist they are liable to heat, and in consequence the plants cast their leaves soon after they are unpacked. Delicate plants are from the same practice sometimes destroyed by mould. If the journey is short much is left to chance; unexpected delays, however, frequently take place at railway stations, &c. Moss should be clean and fresh. The best is *Hypnum fluitans*, or different species of *Sphagnum*. Moss from trees is seldom advisable.

5. Moss should be neither too dry nor too moist. If the plants are well watered before being packed, the moss requires only to be just moist enough to prevent its breaking under the hand. It is sure to become damp enough during the journey.

6. The soil should never be too moist nor too dry. It should not be watered at the time of packing, or the roots may rot. The best way is to moisten it an hour before packing. Plants should never be watered after they are packed.

7. Plants should never be sent in summer, simply in contact with each other; the pots or the masses of soil should be kept apart by cross sticks nailed at either end, and the interstices filled up with moss. Without these precautions they are often displaced and injured.

8. In the case of novelties or varieties, plants are too often sent out before they are established, and disappointment thus ensues. The delay of a few weeks is preferable to the chance of injury from too hasty transmission.

9. In the case of fruit trees or shrubs, more pains ought to be taken in removing the plants from the soil. The roots are often so damaged, or so devoid of rootlets, that success is very uncertain.

Finally, packing ought never to be trusted to inexperienced hands.—(*Gard. Chron.*)

[We particularly invite the attention of nurserymen to these important rules. And here, with all due deference to English nurserymen, many of whom pack well, yet we must say, that they cannot begin to pack with the French or Belgians, who understand the *philosophy* of packing as will be seen by their rules. We have had plants from England packed in shavings and hay, both ruinous to the specimens. Nothing but fresh moss, neither too dry nor too damp, will enable any plant to resist safely the dangers of a two weeks' passage across the Atlantic.—Ed.]

SOWING TENDER AND HALF-HARDY ANNUALS.—In sowing we fill either pots or boxes half full with rough material, generally riddlings from beneath the potting-bench, then two inches of sandy loam, and then a little fine sandy loam, on which the seeds are sown, and some finer still, with a little peat earth and silver sand for covering. The covering depends on the size of the seeds. For large seeds, such as the finer Lupins, from one-eighth to one-quarter of an inch. For such seed as Cockscombs, and the *Perilla nankinensis*, about one twentieth of an inch. For such very small seeds as *Calceolaria*, *Lobelia speciosa*, and *Portulacas*, the slightest sprinkling, and that generally of dry silver sand. For all small seeds the surface is first made smooth with a board, and the same smoothing is resorted to after the slight covering. Our rule is never to cover deeper than the thickness of the seeds. Deep covering gives many an honest seedsman a bad name. Another matter of importance is, for all such seeds placed in pots, &c., especially small seeds, to keep them shaded before the seedlings begin to appear. Those we sowed the other week, and so treated, are beginning to show, such as *Brachycome*, *Perilla*, &c., and these must have light and comparative coolness ere long, to keep them from damping. The shading

is accomplished by an old newspaper, or anything of that kind being placed over the pots. We generally leave them about a week under the paper before watering, as the seeds imbibe moisture from the soil; and then, when watering, instead of using a rose of any kind, I prefer flooding all the surface with water, by pouring the water against the sides of the pot in a crock, or oyster-shell, held in the hand. I do not give my theory, but I know in practice, that a pot with tiny seedlings will neither damp nor shank when so flooded or sailed all over, in anything the same proportion as they will do when watered from a rose, however fine.

The great remedies, however, against loss from these causes, is pricking out, either singly or in patches, and giving more air.—(*Cottage Gard.*)

STRAWBERRY PLANTS FOR EARLY FORCING.—The general practice of preparing strawberry plants for early forcing, is to secure the earliest runners of the current year, and transfer them to their fruiting-pots as soon as possible. I may safely say this practice requires a great deal of attention and good treatment to obtain strong, well-matured plants before the winter of the same year. The practice I have followed successfully for two years, is to peg down a sufficient quantity of runners any time in June; when sufficiently rooted lift them and transplant them in nursery-rows on a piece of ground in good condition—having a south aspect preferred (with me)—there to remain all winter and next spring, until the end of May or beginning of June. Lift them with moderate balls, and plant them in six or eight-inch pots, according to strength of plants, in good rich soil; then plunge the pots up to the rim in coal ashes or saw-dust in a sheltered situation exposed to the sun, paying attention to watering the plants. They may safely remain until the approach of winter, when they should have the protection of a glass frame or other convenience, from whence they may be taken to the forcing quarters as occasion requires. The plants will be greatly benefited by giving them a surface dressing of rich loam early in November. By this treatment the plants will give satisfaction. Not having seen or heard of this method being practised, I thought it might be worth the notice of some of your numerous readers.—(*Scottish Gard.*)

THE GERMAN IVY.—Then the summer of 1859 had put the spell off the Russian and German ivy plant *Ipomœa hederæfolia*, and it flowered out of doors against a south wall—a pale lilac, convolvulus-looking flower, just as Phimier painted it. When Mr. Masson travelled in Russia and the north of Europe and wrote his notes, six or seven years back, he said the nobles in Russia had backgrounds of ivy to all their drawing-room decorations of flowers in the dead of winter; but nobody in London could understand how they managed their ivy, and, being then out of humor with the Russians, they did not care much about the loss of their way of growing the ivy. But when I was last at the Clapton nursery, I met a nurseryman there from the north of Prussia, and we rode in the same 'bus, and then I got the secret. He said the ivy was never so used in as far as he had travelled on his yearly rounds in Russia. But there, and with them in Germany, the *Ipomœa hed-*

eræfolia had been, time out of mind, trained in narrow boxes for indoor decorations in winter, and by mixing it with flowers and backing flowers with it, nothing in its way could possibly excel it. No matter how hot or how dry was the air of their living rooms, the "German ivy," as he called it, was sure to be at home there or elsewhere, away from the frost—train it up inside their double-glazed windows, or over their mantel pieces or against the walls, anyhow, no hurt or harm or insect ever went near it. "But you, in this happy England," he concluded, "have no difficulty in greens, for everything keeps green with you, and you have no need of them." But you heard last week of the Highland welcome which this same German ivy has met with in New York, where our ivy has no chance against the frost, and may we not, after all, have a leaf out of their books?—(*Cottage Gard.*)

[We think there is some error in this. The German ivy, so called, and which is alluded to in the "Highland welcome at New York," is the *Senecio* or *Mikania*, and we have no doubt it is what the Germans cultivate. The *Ipomæa hederæfolia* requires more heat and sun than parlors afford, and would never grow with the rapidity which we know is characteristic of the German ivy in comparatively dark rooms. Mr. Beaton, who pens the above, must be mistaken. We cultivate the *Ipomæa hederæfolia*, and it requires both heat and light to grow and bloom it. Even in England it was only the hot season of 1859 which revealed its excellent qualities as a summer blooming runner.—Ed.]

HERBACEOUS PLANTS FOR GARDEN DECORATION.—I can see no reason under the sun, why a flower garden of any extent should have the lapse of one week without flowers from the first coming of the crocus, through the necessary change to pot-plants, and planting out towards the end of May, but the one substantial reason of expense of seeds, and of looking after the seedlings in bad weather. Instead of despising the annuals, I would insist on gardeners learning how to manage annuals properly, and unless they could get full sixty kinds of them in bloom for me by the time the bedders were being put out—to bloom whilst the bedders were getting their teeth, as it were—I would show them how to do them. Then if I found the cost to be more than would suit me, I would fall back on a set of our best herbaceous plants, and take a score of kinds of them, or a couple of dozens, and I would begin the spring with *Ranunculus amplexicaulis*, the earliest white bedder help on the list; (I said lately that this was grown largely at the Pine Apple Place Nursery, by Mr. Arthur Henderson, on purpose for such work); then the *Arabis alpina*, *alias* *præcox*, and *alias* *alba*, comes in at as early a period and lasts as long, about six weeks. *Alyssum saxatile*, plain and variegated, and evergreen, follow on in April, and should be had in quantity. *Iberis Tenoreana*, a sweet, early May-flowering plant. *Iberis corifolia* the same. The *Delphiniums*, as *formosum*, *Hendersoni*, *magnificum*, and *pulchellum*, or any others near them, are handsome and most useful helps—the new, round patches of it are now only going out of flower at Surbilon—*nilvalis* and *subulata* are nearly as good, and the four are suited for the front of beds and borders, just as *Polyanthuses* and *Auriculas* were a month earlier.

To represent the new class of Phloxes, none of the old is so good as Criterion, which is striped carnation-fashion, and lasts in bloom a long time, rising from two to three feet high, according to the soil it is grown in. *Chelone barbata*, and several kinds of Pentstemons and Potentillas, make the very best border plants, either in masses of one kind, or in single patches. There is no end to the new races of Phloxes and Pæonies, also the new Pyrethrums and Potentillas, as *carneum* and *roseum*, Duchesse de Brabant in the shade of carmine nosegay; Prince Alfred, a purple crimson, fine, and fulgidum, a blood red, besides others I have not yet seen. Antirrhinums, again, remove perfectly easily from the seedling state till they are in full bloom, and back again the same season after they are over, so that no room is lost to the great work of the season—a perfect mass of bloom in all parts of the ground.

Then there is no end to hardy variegated plants, and in the spring most of them are as handsome in their variegation as others are for their flowering beauty. Besides, by the man of quiet mood and perennial comfort, none of these need be at all removed save once in two or three years; but *Dianthus*es and Capt. Trevor Clarke's mule Pinks, single and double, are most useful, showy, and easily transplanted at any period of their growth. *Oenothera prostrata* and *serotina*, as well as *laraxifolia* and *macrocarpa*, are all very lasting, but the last two will not bear to be removed often or during the summer. *Lychnis Haageana*, *Sieboldi*, *Burgeana*, *coronata*, and *fulgens* require only to be kept young, or as biennials, to be most useful and very telling. The old, pretty little *Saponaria ocymoides*, to be kept young, like a mountain pink, is one of the neatest front-edge plants we have. In rich or damp soil the Forget-me-nots are all useful; such as *Myosotis azurea grandiflora*, *montana* and *palustris*, and *palustris alba*, can be moved from place to place the whole summer. *Platycodon grandiflora* is another, the most showy of all the Campanulas. The little, white *Campanula pumila*, if it were divided every April, would bloom for nearly three months from July, and occupy no more than three or four inches along the edge of a bed or border. *Campanula carpatica*, blue and white, treated in the same way, last out the whole of the flowering season. In May no garden should want a bed of *Dodecaëon gigantea*, which would easily remove when the leaves begin to fade, and rest till the turn of the new year. *Phlox vernais* is a true bedder for April and early May, and to be kept young from runners or cuttings. *Phlox procumbens*, equally good for May. Such as I have indicated to be kept young, need to be looked to about making cuttings of them, or dividing them every year, or once in two years at the farthest. But every gardener in the country could add some more names to this general selection of herbaceous plants, which last a long time in bloom, and are not difficult to manage, and no greater compliment could any one of them pay to the new rank and title of the good, old and true Cottage Gardener, than to add half a dozen kinds of equal merits with these here indicated, and at the same time to say how they should be done by; for all my own experience goes to prove that bare lists of plants do but puzzle and perplex any mortal as to how to dress them, or keep them, or where to put them, and how to make

the most of them. But I made the following up on several occasions I had been at Mr. Salter's Versailles Nursery, and if I keep it much longer I shall not say what may happen.

I shall begin with the Greek Valerian, *Palemonium cœruleum variegatum*—the very prettiest-edging plant in this world, where the light, deep, rich soil enable it to be as it has been with me till I was foolish enough to lose it altogether through sheer greediness in excessive propagation; *Veronica chamædrys*, which will be in the bedding lists soon, as it had a first-class certificate for a hardy edging plant for the million from the Floral Committee—this will beat the hardy *Alyssum variegatum* or its substitute; many other *Veronicas*, *Vincas*, and *Verbenas* with well-marked variegations; *Ledum acre*, *var.*, and *Sedum telephium* two sorts; *Saxifraga granulata*, a gem for rocks if not disturbed; three and five-lobed Shamrock, for St. Patrick's patrimony, as deep in rubrum as Orach is in rubicundum—dark purple bands, in fact; *Symphytum officinale*, a grand thing, with bands as in ribbon grass, but four times broader; *Agrostis vulgaris* and *colorata*, very nice; and *Arundo phragmites* with golden chains; *Calystigia sepinum*, *var.*; *Comarum palustre* ditto; Lily of the Valley as ribbon grass; Solomon's Seal, or *Convallaria*, *Polygonatum*, and *C. Sieboldi* the same, very handsome; *Festuca glauca*, for verges to green drives in plantations, and to carriage-roads where they run through rough underwood in plantations and large shrubberies. Coming from the London lodge, such verges never want cutting or weeding. Many *Funkias*, *Centaureas*, *Irises*, *Ground Ivies* or *Glechomas*, *Lamiums*, *Rudbeckias*, *Melica* and *Mentha*, *Leronicas* and *Vincas*, *Ledums* and *Salvias*, and indeed to the number of 250 kinds, and every one of them a variegated plant, quite a novel sight of itself. But the gentleman on Brixton Hill who gave me the yellow *Polyanthus*, and who has a regular museum of rare plants, showed me five or six plants of the Golden Variegated *Aucuba Japonica*, which few people can do properly, but which he does as regularly as the Flower of the Day, even to the bark of the young wood,—all of a glowing golden yellow in immense stripes, spots, and blotches.—(*Cottage Gard.*)

POLYANTHUSES FROM SEED.—Being an admirer of the polyanthus, it struck me that it might not be uninteresting to some of your amateur readers, like myself, to learn the mode others have so successfully followed in raising seedlings, as I find not a few complain that they cannot get their seed to germinate. I procured a packet in the spring of 1859, and having prepared a pan of good garden soil, with plenty of drainage, I made the surface fine as possible, and after having sown the seed evenly, I was careful to cover it very slightly—a mere crust over the surface. I then kept the pan uniformly moist, and covered it with a hand glass to keep it from baking. Nearly every seed vegetated and did well. But great care must be taken, when the seedlings are up, not to let them get dry, as thousands are lost in that way. I then pricked them out into pans and kept them over the winter in a cold frame, and found in the following spring that I had nearly 500 healthy plants to bed out; many of them bloomed last season,

and all have done so this. And what is more, there are many good stage varieties among them, whose substance and lacing are almost all that could be desired. I have shown them to several friends, qualified to judge, who pronounced many of them to be superior kinds.—(*Gard. Chron.*) [Good advice.—Ed.]

Gossip of the Month.

VISIT TO HOVEY'S NURSERIES.—The season for strawberries is one which should remind us of the obligations we are under to our horticulturists for introducing and cultivating new kinds imported from England and the continent of Europe, oftentimes at great expense, as many varieties prove worthless, those that are really good being only about one in a hundred. But from their unwearied exertions and labor in cultivating these plants, and in obtaining new kinds from the seeds of them, many of the finest varieties have been produced that are now cultivated so extensively for our market.

No one has done more for the cultivation of the strawberry than C. M. Hovey, Esq., of the well known firm of Hovey & Co., of this city, who for thirty years has been devoted to the improvement of strawberries for market use. The first good variety, and one that has stood the test of upward of thirty years, was obtained by Mr. Hovey from the seed, and the history of this seedling shows the perseverance with which he labored, year after year, to produce a strawberry which would combine all the requisite qualities necessary for a good market berry. He commenced his experiments in 1833, and did not succeed in perfecting or rather obtaining the present seedling until 1838, when it was shown for the first time under its present name at the exhibition of the Massachusetts Horticultural Society on the 30th of June of that year. In producing this single variety he probably rejected twenty seedlings, which, although not coming up to the standard he required, were of themselves perhaps as good, if not better, than many of the new varieties that are brought before the public each season and offered for sale at high prices.

Although the Hovey's Seedling with Messrs. Hovey is very fine, yet there many growers in the vicinity who bring it to a higher state of perfection even than themselves, both as regards size, color, shape and productiveness. One cultivator in Belmont picked, last season, 4000 boxes, and this season the yield would have been much larger, had it not been for the continued hot and dry weather. As it is, up to this time, he has picked but about 3000 boxes, which is a large number, as the heat has been a great injury to the crop. Of all the varieties exhibited this year at the Belmont Strawberry Festival, Hovey's Seedling seems to have taken the lead, and upon inquiry of cultivators what kind of strawberry is the best for market culture, we find that Hovey's Seedling is generally the first one named as being the greatest bearer; and so, too, in passing through our markets, if you

ask the name of the finest strawberries you see, the answer will invariably be Hovey's Seedling—a fact that wholly substantiates what we have said above.

Mr. S. Howard of the Boston Cultivator, Mr. Wetherell of the State Board of Agriculture, and Messrs. F. L. Winship, Wm. Underwood, C. H. B. Breck, and other gentlemen of the Fruit Committee of the Mass. Hort. Society, by invitation of Mr. C. M. Hovey, visited his gardens and nurseries on the 5th inst., to see his strawberries and partake of his hospitalities. After an hour of pleasant conversation in his delightfully cool drawing room and library, they visited the beautiful lawn in front of the greenhouses, around which are grouped specimens of rare shrubs and ornamental shade trees, of which he has a magnificent collection, consisting of every thing that is worth cultivating. Here, too, is a vigorous young oak of about twenty years growth, which is a legitimate descendant of the famous Charter Oak of glorious memory; it was raised from an acorn taken from the old tree by the late Dr. Bull of Hartford, who gave it to Mr. Hovey when it was only three inches high; it is now twenty feet and is stout and strong, and may perhaps become as famous in history as its old father.

They next visited the strawberry beds, where was seen growing the Duc de Malakoff, May Queen, Wonderful, and La Constante, which latter is of most healthy and vigorous growth, and the most magnificent of all the European strawberries that have been imported into this country, as well as many other kinds that are not considered of so much importance; after which they saw the Wilson's Albany (whose fruit requires as much sugar to make it palatable as the stalks of rhubarb), as well as many other American varieties, and lastly Hovey's Seedling, the growth of which compared favorably with any of the kinds in cultivation.

After leaving the strawberries, they visited the collection of fine roses, still in full bloom; the beds of lilies that are beginning to show what they will be when they come into flower about the middle of August, and which alone will fully repay one to visit; then the greenhouses and collections of geraniums and other choice plants; after which to the nurseries, where are more than three hundred varieties of specimen bearing pear trees; and lastly through the plantation of kalmias, the like of which cannot be found in cultivation elsewhere. And now, after a two-hours' exposure to the hot sun, its effects began to be apparent, and retracing their steps to the house, Mr. Hovey invited them into his dining room, to taste the various kinds of new strawberries they had seen growing, and to compare them with some of the old ones.

Of all the new varieties, La Constante was thought to be the best, most productive, the largest and most uniform in size, the highest colored and of the finest flavor. Wonderful was next, but does not color so well, and although some of the berries are as large as fair sized teacups, yet the flesh is coarse and the flavor insipid. Some twenty varieties of the imported strawberries were duly tried, and their merits discussed, but La Constante took the lead, and, although it cannot be recommended for general culture, yet no amateur should be without it in his collection. Of the

American varieties not one surpasses Hovey's Seedling, and we think it will be a long time, if ever, before another is found that will stand at the head of the list of strawberries, or one that will combine so many of the desired qualities of a good market berry as Hovey's Seedling. (C. H. B. B., in *Transcript*.)

DIOSCOREA BATATAS AS AN ORNAMENTAL CLIMBER.—A friend and correspondent sends us the following:—

I am very much pleased with the growth and appearance of the *Dioscorea batatas* as an ornamental plant. I planted one in 1859, on the strength of your recommendation, and it has been an object of much interest in its way. The small end of a medium-sized tuber was set in a spot where the soil was deep and strong, and, although it starts from the ground quite late in the spring, I know of nothing which surpasses it in vigor when once fairly in growth. Its chief merit consists, however, in the beauty of its foliage, in connection with its innumerable small branches, which shoot forth, with much regularity and grace, along its entire length. Although mine is not in the best situation to develop all its merits,—having only a tall straight pole around which to twine,—I can imagine many a place and position where it would be much prized for the peculiar color and shape of its glossy leaves, and its general characteristics of growth.

Having never met with it elsewhere as grown for the purpose of show or screen, I allude to it now, in writing to you, to commend it as a beautiful addition to the list of hardy, free-growing, ornamental climbers.—D. S. D.

Massachusetts Horticultural Society.

Saturday, May 4th, 1861.—An adjourned meeting of the Society was held to-day,—the President in the chair.

Henry Green and Wm. Gray, Jr., were elected members.

Adjourned two weeks to May 14th.

May 14th.—An adjourned meeting was held to-day,—the President in the chair.

The Committee appointed to procure portraits of the Presidents of the Society reported that they had attended to that duty, and that they had been completed as follows:—

Messrs. Dearborn and Wilder, by Miss Stuart.

Messrs. Cook and Cabot, by Brackett.

Messrs. Walker and Stickney, by Hartwell.

Mr. Vose, by Young.

Mr. Breck, by Pratt.

The whole expense amounting to \$944.20. The report was accepted.

It was voted that the receipts of the Spring Expedition be given to the Soldiers' Fund.

Adjourned three weeks to June 2d.

June 2d.—An adjourned meeting of the Society was held to-day,—the President in the chair.

Messrs. Wilder and Stickney, trustees under the will of B. V. French, reported that they were ready to pay the Society \$500, and it was voted that the Treasurer be authorized to receive the same; and a Committee, consisting of the President, and Messrs. Wilder and Stickney, was appointed to consider the purpose to which said money shall be applied, and report to the Society.

Adjourned two weeks to June 18.

June 18th.—An adjourned meeting of the Society was held to-day—the President in the chair.

The amount received from the May Exhibition was \$62 50, which amount had been increased by contributions of members to \$195 50, which sum the Treasurer held, to be paid over to the Soldiers' Fund. Mr. G. W. Pratt was appointed a committee to pay over the amount.

A communication was read from J. F. C. Hyde in relation to the starving of cattle by W. A. Harris, a member, and the Secretary was authorized to notify Mr. Harris, according to the by-laws, that the consideration of his expulsion from the Society would be taken up at the meeting in July.

Horace Bachelder was elected a member.

Adjourned two weeks to July 6.

July 6th.—An adjourned meeting was held to-day—the President in the chair.

The Committee on Publication in connection with the Executive Committee asked further time to make a report, and it was voted that it be deferred to the next quarterly meeting.

The consideration of the expulsion of Wm. A. Harris was taken up, and Mr. A. C. Bowditch moved that he be expelled. After some discussion, the question was put, and it was unanimously voted to expel Mr. Harris from the Society.

B. T. Wells and Joseph H. Walker were elected members.

Adjourned four weeks to August 2.

Exhibited.—**FLOWERS:** The President, Hovey & Co., Barnes & Washburn, W. H. Spooner, Jr., Evers & Comely, J. McTear, J. Nugent and others sent cut flowers in great variety.

Messrs. Hovey & Co. sent a beautiful specimen of a Heath in full bloom, found growing wild about 20 miles from Boston, by Mr. J. Dawson in their employ. Whether it is really indigenous, or has accidentally been introduced, is a very interesting question, as it is the first time a heath has been observed within the limits of the United States. No botanist has ever discovered one. The heath, Loudon says, is indigenous to Nova Scotia, and this may be a native locality hitherto overlooked. It is a variety of the *Calluna vulgaris*, or Scotch heath.

FRUIT: Messrs. Hovey & Co. again exhibited remarkably fine specimens of *La Constante* strawberry.

Horticultural Operations

FOR AUGUST.

FRUIT DEPARTMENT.

GRAPES VINES in the greenhouse will now be ripening: give an abundance of air both night and day, and discontinue damping the walks. Look after the laterals and top them where they have broken at the last stopping. Vines in earlier houses will now be ripening their wood, and may be thrown open as much as possible in fine weather. Cold houses will now be just in the condition to require attention: guard against mildew; if the weather should be wet and cool there will be danger: maintain a genial heat by closing the house early, and continue to damp the walks till near the change of color in the fruit. New vineries should be kept warm, with an abundance of moisture.

PEAR TREES should be summer pruned, nipping off all small laterals to two or three buds, and topping the larger ones: mulch and water such trees as are bearing good crops.

STRAWBERRIES may be set out this month. Next to April or May, August is the best month, the young runners then being strong enough to plant. Prepare the ground at once, if not already done, and plant towards the latter part of the month. Old beds should be cleaned out by digging in the old plants, so as to make room for fresh runners. New beds planted in April or May should be kept clear of weeds.

BUDDING should be commenced soon, beginning with the pear.

FRUIT TREES in pots should be well watered, to insure a vigorous growth. Trees in fruit should be sparingly watered.

FLOWER DEPARTMENT.

AZALEAS will now need attention, in order to secure an early growth and well ripened wood. Finish all repotting at once, and keep the plants in a close warm house until the last of the month, when they should be removed to the open air, to mature the growth, on which abundant flowering depends. Syringe often, and tie the plants into shape. Look out for the thrips, and kill them by frequent fumigations with tobacco.

CAMELIAS, that require it, may yet be repotted, but the sooner this is done the better. Syringe every day. Young plants may be grafted now.

CHRYSANTHEMUMS will need no further attention than an abundance of water and liquid manure occasionally. Stop pinching the plants after the 15th of the month.

PELARGONIUMS headed down in July should be shaken out of the old soil and repotted into smaller pots this month. Keep in a sheltered frame till partially rooted.

CALCEOLARIAS, CINERARIAS, &c., sown last month, should be potted off as soon as large enough for that purpose. Cinerarias, propagated last month, should be kept in a cool frame, and have careful watering. Fumigate for the green fly.

HEATHS, EPACRIS, and similar hard-wooded plants should be repotted, using a soil composed of peat, leaf mould, fibrous loam, and plenty of sand.

ROSES, for early blooming, should be repotted.

OXALISES AND IXIAS should be potted.

BEGONIAS should be now shifted for the last time.

MIGNONETTE, SWEET ALLYSSUM, and other Annuals for winter blooming, should now be sown in pots or boxes.

MONTHLY CARNATIONS, for early bloom, should now be put into the flowering pots.

EUPATORIUMS, and other soft-wooded winter flowering plants, should be plunged, and have the shoots stopped to make bushy specimens.

ORANGE TREES should be repotted.

JAPAN LILIES in pots, done flowering, should be sparingly watered.

CYCLAMENS may be repotted this month.

FUCHSIAS should be liberally watered.

CALLAS should be shaken out of the old soil and repotted the last of the month.

WINTER BLOOMING and STOVE PLANTS, of all kinds, should be looked after, repotting all that require it. Syringe freely in hot weather.

FERNS should be kept in a rather shady close house. Syringe often.

INSECTS should be looked after, especially the red spider and thrips.

BEDDING STOCK for next spring should be propagated towards the last of the month.

PREPARE SOIL for winter use. Let it be stacked up carefully, so as to shelter it from heavy rains.

FLOWER GARDEN AND SHRUBBERY.

The dry weather has given a yellow hue to the lawn, and obviated the necessity of mowing as often as usual; with coming rains it will soon be verdant again and should be cut. Roll and mow, rake and clean the walks, and preserve neatness everywhere. Prune in shrubs done flowering, and hoe and rake the borders and shrubbery.

DAHLIAS should be attended to. Water in dry weather, and trim and mulch the plants.

ROSES should be layered immediately.

CARNATIONS AND PICOTEEES should be layered.

NEAPOLITAN VIOLETS should be watered in dry weather.

JAPAN LILIES, coming into bloom, will keep a long time in beauty if slightly shaded from the noonday sun.

GLADIOLUSES should be neatly tied up.

ROSES, budded, should have attention, by keeping down all suckers, which soon rob and spoil the plants.

SOW PANSY beds for a spring stock.

SEEDS should be looked after, saving only such as are choice or have been hybridized.

VARIATION IN PLANTS.

THE interest excited by the publication of the Darwinian theory has nearly died away; after occupying the attention of physiologists and botanists, who pretty freely discussed its merits, converting but few if any of them to the theory, it has ceased to be a wonder, while the true which was mixed up with that which was speculative has not been without its value. Professors Gray and Agassiz among our own scientific men freely criticised this theory, and showed, as we think, conclusively, the erroneous views regarding the origin of species; yet many of Mr. Darwin's ideas are original, and worthy of the careful attention of intelligent cultivators.

A recent article by Dr. Lindley, in the *Gardeners' Chronicle*, upon changes in plants, though he is no believer in the Darwinian theory, takes such strong ground against the agency of cultivators in effecting these changes, that we deem the subject worthy of comment.

It will be surprising to some of our gardeners, who have supposed they have accomplished something, to be told that in all the production of new plants they "exert no influence whatever; they alter nothing, make no new variety, even," and, beyond the power of extinguishing life and perpetuating it, have none in "altering any of its manifestations in the progeny he rears." Really, after all the wonderful accessions to our gardens of late years, both with and without hybridization, to be told there has been no skill exerted in all this; that it has been in spite of, and not by our efforts, is reducing the art of the gardener to a very common-place occupation, hardly worthy to be called a profession. But is this so? We copy the article, that our readers may see the reasoning:—

Horticulture, whether regarded as an art or a science, a pursuit or a profession, now occupies more of the attention of the educated classes than at any previous period. Now horticulture essentially consists in subjecting living organisms to

the wants, tastes, and caprices of man, who obliges the plant he wants or admires in its natural condition to live where he pleases, however far from its native haunts; and who requires the plant he does not want or admire in that condition to change its form, or color, or habits, and assume such as will render it valuable to him, or beautiful in his eyes. It is true that many ends are served by good horticulture, and many qualifications, scientific, artistic, and economic, are required to make a good horticulturist; but all these would avail nothing, were the life of the plant not given into man's hand, and with it the apparent power to *change its nature and condition*. Such being the case, it behoves those who are engaged in expounding the phenomena of life to take cognizance of the experimental methods employed by gardeners; and it equally behoves the intelligent gardener to pause at intervals in his operations, and ask himself how he is prepared to answer the queries of the naturalist, who should ask him what great biological principles the practice of his profession teaches. As an example, we may suppose the naturalist to say, "The seed, bud, or root you hold in your hand is that of a newly imported plant, whose past history you think is nothing to you, and whose future is perhaps as little if you are so clumsy as to kill it in your operations; nevertheless it involves a history older than that of your own race, it is one link in a chain of life of whose beginning you can know nothing, but of whose future, if you propagate it, your profession ought to enable you to predicate something; what is that something?—for instance, will all future links be like the present or the contrary? Your answer will be, that if you have time and opportunity you can almost certainly make the progeny of this seed larger, also alter its color, very likely its form, and perhaps even its constitution. If asked for evidence you point to the multifarious changes brought about by horticultural skill; to the new gloxinias, fuchsias, and begonias; to the spotted-leaved aroids and other plants which had no existence in nature a few years or even one year ago; or the still more wonderful cases detailed in our columns, as that of the *Begonia frigida* changing its whole floral organization, the *Thuja pendula* originating from *T. orientalis* in Loddiges' nursery, and

to the *Platanus acerifolia* springing up (according to old Miller) under the shade of *P. orientalis*. In all these cases, and many others might be quoted, the change between the original plant and its progeny is so great that had they been independently imported, even from the same country, their common origin would never have been suspected.

Now it is the prevalent opinion amongst horticulturists, and young gardeners especially, that with the exception of the sudden sports last mentioned, the change is effected by the operator influencing the plant, and *causing it to vary*; but the principal object of this article is to show, that the general result deduced from the practice of gardening is, that the operator exerts no influence whatever, he alters nothing, makes no new variety even; he has always the power of extinguishing life, and of perpetuating it, but not of altering any of its manifestations in the progeny he rears. Before proceeding to expound this apparent paradox it should be said that this is no question of Darwinism or its alternative; to such a clear thinker as Mr. Darwin (for he thinks and reasons clearly enough, though he may carry his conclusions beyond proof or probability) much of what follows must be self-evident.

What is written here is for the consideration of gardeners, men who are in general acute observers, and laborious experimenters, and successful ones too (witness the successive new varieties exhibited at our shows); but whose profession leaves them little time for abstract reasoning.

The tendency to produce a variable offspring is inherent in the constitution of every plant, and is, indeed, a necessity of its existence; there is no such thing as a repetition of the parent in the progeny. Nature supplies the gardener with varieties, and all he can do is to exert his skill in choosing which of them is best suited to his wants, and again selecting from its progeny what is still better suited, and so on till his wants are satisfied—there is no reason to suppose that the first progeny of the seed, had it been left to itself, would have differed aught from that it produced under the gardener's care; the difference is, that in the former case the survivors would, *cæteris paribus*, have been those most like the parent; in the

latter they are those the gardener cares to keep. It is to this inherent power of variation and its apparent universality that the attention of horticulturists should now be directed, for it involves first principles in Biology. There is a passage in Dr. Hooker's "Introduction to the Tasmanian Flora," which broadly announces that author's belief in incessant variation, and which, if true, goes far to overthrow the dogma that "each plant can vary only within certain limits." It is this: "All vegetable forms are more or less prone to vary as to their sensible properties; no organ is exactly symmetrical, no two are exact counterparts, no two individuals are exactly alike, no two parts of the same individual exactly correspond, no two species have equal differences, and no two countries present all the varieties of a species common to both, nor are the species of any two countries alike in number and kind."

The fact that no part of an individual is ever exactly reproduced is familiar enough. It is a common school-boy's trick to bet that another cannot match a blade of grass, or leaf of hawthorn. Every gardener knows how difficult it is to keep the progeny true to the parent; that the same garden variety does not originate in two independent nurseries, and that the races of one plant raised in Belgium differ from the races of the same raised in France, Holland, or England. The same holds good in other matters; the psychologist tells us that the intellect of one man is never exactly reproduced in another, and the painter and sculptor assure us that it is the same with the human form and face. Moreover, we are completely ignorant of what differences will appear in the progeny of any plant or animal; all we know is that there will certainly be differences between all the progeny and their parent, and that they may be so great, as in the cases of the thuja and begonia mentioned above, as to exclude all idea of a common parentage. So it is with the human individual. Fancy asking a painter on the strength of a life-long intimate acquaintance with your own and wife's persons and family, to paint a portrait of your infant son as he is to be when arrived at manhood, or asking a tutor who has presided over the education of both parents to prognosticate the college career of their offspring. The notion is ridiculous; but why should it be so

if, as a rule, the resemblances prevailed over the differences?

Moreover, there is great reason to believe that the tendency of the successive progenies is to depart further and further from the original standard and seldom or never to return to it; and this, if proved, is a still more valid refutation of the doctrine that there are limits to the variations of each kind of plant. The logical consequence of such a rule of centrifugal variation is, that the only limits are what reversion interposes. In conclusion, no one pretends to know what have been the varieties of any garden plant previous to its historic origin. We all know that it will never reproduce its exact counterpart, but as we cannot tell in what the departure from the type is to be, the saying that it will vary only *within certain limits*, either has no meaning or a false one.

Much of this, as the writer remarks, may be "self-evident" to Mr. Darwin, which may perhaps mean that it is not self-evident to observing cultivators, "who have so little time for abstract reasoning." We certainly do not think it will commend itself to intelligent gardeners.

"The tendency to produce a variable offspring is inherent in the constitution of every plant, and is a necessity of its existence; there is no such thing as a repetition of the parent in the progeny." Part of this may be true, that is, the tendency of plants to vary. We have no doubt of this, though not so inherent as to prevent the repetition of the parent in the progeny. We might name a hundred instances where, for at least the life of an observing man, there has been no change in the growth, appearance, and flower; that they have been, year in and year out, just the same, and probably so for hundreds of years. We have but one species of Tulip-tree, (*Liriodendron tulipifera*), and yet a naturalist found the fossil remains of this very species 100 feet below the surface of the earth in one of the deep cuts in California, as stated in Silliman's Journal, we think, for 1858. How many hundred or thousand years had it been buried there? and yet we have the exact copy of it now. Does this show an inherent power to change readily? Has the commonest

flower that grows in our pastures, the dandelion, shown any disposition to change? Is there a very pale yellow, white or variegated variety? We think it would puzzle Dr. Lindley or Dr. Hooker to tell the dandelion of to-day from that of twenty years or more ago; that at least here is "a repetition of the parent in the progeny." The old dogma, that "like produces like," still holds good, at least with plants.

Again. "Nature supplies the gardener with varieties, and all he can do is to exert his skill in choosing which of them is best suited to his wants, and again selecting from its progeny what is still better suited, and so on till his wants are satisfied,—there is no reason to suppose that the first progeny of the seed, had it been left to itself, would have differed aught from that it produced under the gardener's care." The theory of Van Mons in raising new pears disposes of this. Since the creation of the world, or at least since we have known anything of its vegetation, the wild pears, left to themselves, have continued the same; but under the skill of Van Mons they were altered in five generations from their austere, uneatable character to the most luscious fruit. Did nature do this, unaided by Van Mons? Shall we then be seriously told that all he did was in choosing which were suited to his wants, and that there is no reason to suppose the progeny, if left to itself, would have "differed aught" from that it produced under his care?

We are not combating the doctrine that plants have the inherent power to change, as we know this to be true, but we do not believe these changes are easily made, and in fact, rarely if ever naturally, for to admit this would admit the power to annihilate species; many of our hybrids being far more unlike than many of the so-called distinct species. Under certain circumstances, and these principally include cultivation, they soon show signs of variation, and these variations, taken advantage of by the gardener, go on changing till they are again neglected, when they cease to vary to any extent. What is more common than to see many of our beautiful annuals, as soon as they are left to sow their own seed, degenerate to the original species. Asters, self-sown, in a year or two become single. Pansies of the most beautiful description,

self-sown, soon return to the commonest weedy flowers. No fact is better known to all gardeners than this. This may be one of the "inherent powers of change," and it would not require a great exertion "of skill" to select the best suited to his wants from such a progeny. Such well-known changes with numerous flowers and even vegetables are so common, that it at once refutes the idea that "the tendency of successive progenies is to depart further and further from the original standard, and seldom or never to return to it."

That plants do not vary so easily as the writer would lead us to suppose, we have only to look at our grasses, which grow thickly together in field and pasture, both with and without cultivation, and yet every species is as distinct to-day as it was a hundred years ago. Is there really no such thing as a repetition of the parent here? Then again in flowering plants. How difficult it has been to make a variation in some flowers. The late M. Vilmorin tells us that he had tried time and time again to produce a double zinnia, yet he had never seen in his whole experience, extending over a long life, even an extra petal. Yet from India, all at once, come zinnias more double even than the most double dahlia,—petals piled on petals,—till the flowers are three inches high, as we now have them in bloom. The sweet pea even Mr. Darwin himself has been unable to change.

We might follow this subject further, but we believe we have been sufficiently explicit to show that the gardener, after all, does have something to do in causing plants to vary; that if nothing more, he brings about immediate changes, so that the present generation enjoys what nature might effect a thousand years hence. He at least must have the credit of hurrying up nature if he has no other power, and until we have more logical reasoning than that above displayed, we at least shall believe that the cultivator does exert an influence, does through his skill assist nature in altering and creating new flowers, fruits and vegetables widely different from anything which a thousand years would be too short to achieve unaided by man.

CULTIVATION OF EVERGREENS.

BY EVELYN.

THE SPRUCE FIRS.—The Spruce fir is a greater favorite with most cultivators, as an ornamental tree, than any one of the pines. This genus has very decided characters; all the species are evergreens, and natives both of the Old and New Continents. They are singularly tall, erect, and pyramidal in their proportions, and their flowing foliage, borne in great profusion, is preferred to that of the other *Abietinæ*. In America they flower in June, and produce their seed in the following year. They are more precocious than the pines, frequently ripening their seeds as early as twenty years of age.

The most remarkable of the foreign species is the *Abies excelsa*, or Norway spruce; the most remarkable of the American species is the *A. canadensis*, or the Hemlock; but as the first is the most easily cultivated, it is the kind most generally planted for ornamental purposes in the United States. The Norway spruce is reckoned among the loftiest of European trees, rising very commonly to a hundred feet, and sometimes attaining nearly double that height. All our readers are familiar with its appearance as a young tree, but it must be seen in its own native clime, when it has had time to attain its full stature and dimensions, to be appreciated. In the north of Europe, it is the most common timber of those immense Fir forests which have from immemorial time covered the north of Russia, Finland, and Norway.

The rules for the collection and planting of the seed are very nearly the same as those given for the planting of pines. The rate of growth is not at first very rapid; "for three or four years at first it does not average a growth of more than from six to eight inches in a year; but after the plants are three feet high, and till they attain the height of fifty feet, the rate of growth is from two feet to three feet a year in favorable soils. In ten years from the seed the plants will attain the height of twelve or fifteen feet in the climate of London, and in fifty years the height of from ninety to a hundred feet." The rapidity of growth of this tree as well

as others must of course depend chiefly on the character of the soil. The climate is of less importance, as, being an inhabitant of the sub-arctic circle, it will bear any degree of cold. How far south, in this country, this tree has ever been raised we are unable to say, but it is the most common of the ornamental evergreens which have been planted in the vicinity of Boston during twenty years past.

It is admitted that all the firs require a comparatively moist soil. In dry soils and exposed situations it becomes stunted and is short lived. Like the White pine it requires a deep loam, both sandy and moist, and it prefers a northern and eastern, rather than a southern or western aspect. The seeds of the Spruce fir may be kept several years without losing their vitality, but they are surest when planted immediately. The young plants should be transplanted once or twice in the nursery, before they are finally planted out, as this transplanting is favorable to a luxuriant and bushy growth. We are likewise more sure of obtaining a good set of trees for our enclosures, from among a lot which have been frequently transplanted in the nursery, than from a lot which have not been removed since they came up from the seeds. Hence the great difficulty of succeeding in the removal of coniferous trees from the forest.

The Black Spruce fir (*A. nigra*) is the American species that bears the most resemblance to the Norway spruce; but it never equals the latter in height, seldom in its native habitat exceeding seventy or eighty feet, which seems to be its ultimatum. It is more bushy or umbrageous than the Norway spruce, and may be readily distinguished, not only by its darker foliage, but by the growth and arrangement of its leaves. The leaves of the Norway spruce are generally under one inch in length, curved or bent, sharp pointed, very straight and stiff, *and more crowded together laterally than on the upper and under sides of the branchlets*. The leaves of the Black spruce are scarcely half an inch long, thickly set, stiff, and are attached singly to the branches, *which they cover all round*. The most notable difference between the two is described in italics. In the general aspect of the two species there is a similar difference to that observed between

the European and the American larches, the European spruce and larch having a hanging foliage, while the American spruce and larch have a shorter, more bushy and stiffer appearance of the foliage. Still, I cannot help according to the American trees the credit of less formality. The American White spruce is a smaller tree, with longer and lighter green foliage, but inferior to the Black spruce in almost all respects. The mode of culture, of gathering the seed, and of planting is not essentially different from that recommended for the Norway spruce.

Passing over several species of Spruce fir, from other parts of the world, we will come to the Hemlock spruce, (*A. canadensis*,) one of the most beautiful of the coniferous trees, and rarely seen in our ornamental grounds, only because its cultivation requires more care and skill, at the first setting out, than any other species. The branches are numerous, spreading, and slender in proportion to their length. The leaves, about half an inch long, are flat and on short petioles, rendering them individually moveable, and this constitutes a very important distinction. They are of a very bright green, with two silvery stripes underneath, and they fall very soon from the branches after they have been lopped from the tree.

“The full grown trees of the Hemlock spruce in England (says Loudon) have a rounder head and a more pendulous habit of growth than is the case with any other fir, either of America or Europe.” He also remarks: “When the tree is young, the branches are quite pendulous and remarkably elegant. The rate of growth in the climate of London is rather slow; but plants in ten years will attain the height of six or eight feet, and in twenty years, of fifteen or twenty feet.” One misfortune attending the cultivation of the Hemlock as an ornamental tree is a constitutional tendency, when standing exposed, to become imperfectly developed in its lower and lateral branches. This habit is probably caused by some imperfection in the soil, or perhaps, after all, from a natural insusceptibility to culture, which the Norway spruce takes very kindly. We read of no complaints of this kind from English cultivators of the Hemlock, but the moist climate of England may be favorable to its growth as a solitary

standard tree. In that country it forms one of the favorite ornamental trees of the fir tribe, and is regarded as taking the place among the *Abietinæ* that the Weeping Willow or the Elm occupies among deciduous trees. It is said to bear the pruning-knife remarkably well, and both in England and America has been advantageously employed for hedges.

It is idle to attempt to transplant young Hemlocks from the woods to our enclosures or pleasure grounds. Not one in a hundred thus transplanted would survive, and the survivor would make but a scanty and miserable growth. Trees of this species should be raised from the seed, and, while young, should be repeatedly transplanted in the nursery, to prepare them to endure the operation, and to give them a bushy and vigorous setting. An all-important condition of success in the planting of this species, beyond all others, is a good deep and fertile soil, consisting chiefly of a sandy loam, and a situation inclining to an excess of moisture without any of the characters of a bog. The Hemlock bears very small pendulous cones that come to maturity in a single year.

The Douglas Spruce fir, a native of the Pacific coast, is a very lofty tree, exceeding in height and size any of our Atlantic species. It has been planted by English cultivators, and, to some extent, by amateur cultivators in America.

The trees of the genus *Picea* are distinguished from *Abies* by their leaves being more decidedly in two rows, by their upright cones, and their deciduous scales. In their general aspect they are more formal, pyramidal, and symmetrical, carrying their branches out more stiffly in a horizontal direction without drooping. It was an unlucky thing, however, for our community that the American Silver fir should have been extensively planted many years ago instead of the superior European species. The American Silver fir (*Picea balsamea*) is a short-lived tree, which, having the recommendation of hardiness and rapidity of growth, became a favorite tree for private enclosures, which are now actually disfigured by it. The trees, as they have advanced in age, have unavoidably become thin of foliage; their lateral branches are seldom well developed and are almost denuded. The tree has proved unworthy of a place in any part of the land. With all its

defects as an ornamental tree its timber is almost worthless.

The European Silver fir (*Picea pectinata*), however, is the noble and beautiful original, of which the American tree is a miserable barbarous imitation. It rises to the height of from 100 to 200 feet, with a straight stem and regular whorls of horizontal branches. The name of Silver is probably applied to it and others of the genus on account of its smooth whitish gray bark, which distinguishes all the trees until they have attained their full growth; after this, the bark begins to crack and become full of sinuosities, like the bark of other conifers. Loudon, however, attributes its name to the silvery lines on the under part of the leaves.

The Silver firs consist mostly of very hardy trees, the European species being considered the hardiest of the *Abietinæ*. Like the American Silver fir, it will bear the roughest and severest exposures, on the hill-side or by the sea-shore, so that one may have a plantation of Silver firs in situations that would be destructive of almost all other trees. But I doubt whether the effects of sea air are so bad as they have been supposed: the difficulty of raising trees on the sea-shore comes from the bleakness of the exposure, and not from the deleterious influence of the sea. Some of our islands in our different harbors were once covered with a dense growth of miscellaneous trees and shrubs that showed no symptoms of inferior health or growth; but after this indigenous growth is removed, the island is without protection from the bleakness of the winds, but the quality of these winds is rather favorable than otherwise to the growth of trees, because they are tempered by the ocean.

The Silver fir is preferred in England to the spruce, where the soil to be planted is stiff, for a soil of this description is so injurious to the spruce that it checks its growth before it has attained half its usual height; but its effects on the Silver fir are hardly noticeable. The latter, however, requires a low situation compared with the Norway spruce, and it suffers more from extreme drought than any other species of the pine and fir tribe. The cones, which are apt to shed their seeds in the spring, ought to be gathered in the fall, and kept

in a dry place during winter. The seeds should be sown as early in spring as the land can be made ready for them, at such a distance as to allow the plants to come up about one inch apart. They should be covered a full inch deep. When the plants are two years old they may be transplanted to another situation, and from thence, at four years old, they may be planted out at a still greater distance apart, or removed to the place of their destination.

Some of the California Silver firs greatly surpass any other species. These, such as the *P. amabilis*, the *P. grandis*, and *P. Webbiana*, are being gradually introduced and brought into notice; but the introduction of a new tree into any country must be the work of a half century at least; then another half century is required to afford the public any good specimens of full-grown trees. There is some pleasure, nevertheless, in watching the growth of young trees, though we know that we must return to dust before they have attained the perfection of their growth. Beside the profit we may derive from them in various ways, before they have become valuable for shade or timber, there is a noble satisfaction in considering the advantage the public will one day derive from the work of our own hands.

SUMMER PRUNING GRAPE VINES.

FROM THE GARDENERS' CHRONICLE.

FEW things in grape culture seem to be less understood than the summer management of the vines; a kind of practice exists, it is true, which answers the purposes of culture, but the principles upon which it is based are familiar to but few. One cultivator says, we must prune off every lateral to one eye, above the bunch, another to two eyes, the object being, as both contend, to check the sap, and retain it to nourish the fruit. This, therefore, has become the rule, not from any principle in grape culture, but because it is the dictum of grape growers. It might be well to ask, can the practice be defended on physiological principles?

We might give our own views on this question,—views we have long entertained and often urged with old grape growers, but we fortunately have this done for us by Dr. Lindley, in the following extract, which is in answer to inquiries upon the subject of summer pruning. It well deserves the careful attention of all cultivators, as it sets forth in the plainest language the true principles upon which all good culture depends. We need not go over in detail the various portions of the article, but we may allude to the last paragraph as being especially important, and to be ever borne in mind by all grape growers, viz.: “The first aim in vine culture should be that of growing every year an abundance of foliage, *as much as can be grown without over-crowding.*”

The result of the summing up teaches us that, but for the admission of light to plants beneath grape vines, which are often cultivated, whether fruit trees in pots or in the ground, or flowers, as in the greenhouse, the whole roof should be devoted to the growth of the foliage and shoots. Thus all that is cut off, until *over-crowded*, for the benefit of such fruits or plants, is to the injury of the vines. Hence it follows that stopping the laterals at the *first, second, or third* bud, is not right in principle, and every shoot so stopped, instead of throwing the sap into the bunch and increasing the size of the fruit, actually diminishes it; for without leaves beyond the bunch to elaborate and make food, there is none to return to the fruit.

But it may be asked, how is it that such practice has so universally obtained? We can only answer by stating that it is like many other gardening notions, which were begun in error and continued in practice till they have become settled modes of culture.

It is to this continued cropping, cropping, cropping, that we may attribute the decrepitude of many vineries. The vines have annually been almost denuded of their shoots and foliage, and in consequence there has been but little increase of roots to sustain the heavy crops of fruit, and eventually they give out. How often do we see old vines that have been headed in produce crops with all the vigor of young vines, showing that it is to the quantity of foliage exposed to

the light which reinvigorates them, by the extension and increase of their root-feeding capacities.

When plants are grown beneath vines, as in the greenhouse, it is not expected that grapes will be raised in perfection. Some sacrifice must be made; both plants and vines cannot be produced successfully. Hence, the laterals are stopped at the first or second eye, in order to admit that light without which they would be ruined. Either plants or vines must be a secondary matter. If the latter, then the laterals must be shortened; if the former, then they should be allowed to run as much as possible, without becoming over-crowded. Such practice only can ensure healthy vines and superior fruit.

Similar principles apply to hardy vines. Only so much wood should be cut away as will prevent them from becoming confused and crowded; and this is often best obtained by thinning out, that is, cutting away entirely all weak shoots, and encouraging the extension and growth of the strong; always bearing in mind to grow as much "*foliage as can be grown without over-crowding.*"

The summer pruning of vines is a question just now largely occupying the attention of our correspondents, if we may judge from the communications which reach us, and of which the following is an example:—

"I cultivate my vines on the spur system, and plant many vines in one house, so that it is desirable, in order to obtain as much light and air as possible, to cut away all superfluous shoots. Planting my vines in the centre, and against back walls of vineries, I fruit from one foot above ground upwards. Now may I cut away shoots that have no bunch on them, and how near the main stem? May I cut away closely all laterals on the spurs between the bunch and main stem? and, as I shall *not* require one-third of the *top-leading* shoot to remain permanently, may I cut or stop this *at once* to the extent required? and may I cut, close in, any laterals on such leading shoots? As I find gardeners are not generally acquainted with the spur system, now so much liked, your kindly answering these questions, and giving physiological reasons for your opinion, will be of great service to many gardeners.—A SUBSCRIBER.

The information sought by our correspondent involves many considerations of importance, amongst which a correct knowledge of the peculiar habit and mode of bearing which is characteristic of the vine is one of the most prominent. In most of our cultivated fruits, such as the apple, the pear, and the stone fruits, such as the cherry, peach, and plum, the crop is either borne directly on the branches developed in the preceding year from buds formed in the axils of the leaves, or else it is produced on the short stunted-looking branches of older growth, which are called spurs. In both cases a distinct kind of bud known as a "fruit-bud" is organized during the summer's growth, and becomes recognizable as such as soon as or even before that growth is matured. It follows that in all this class of fruits there can be no crop produced unless the conditions of growth during the preceding year have been such as to secure the formation, in sufficient abundance, of the "fruit buds" to which allusion has been made.

The habit of the vine is altogether different from this. It bears its clusters on the young shoots of the current year's growth, and not directly on the branches of the preceding season, and these bearing or productive shoots may be developed from any part of the stem, either from the old or the young wood. By the system of close spur-pruning, as it is called, the stem of an old vine may be so pruned that nothing would remain but a knobby and apparently budless rod, and yet from such a bare pole buds hitherto latent or dormant would be found to burst forth, often with much vigor, and every shoot thus produced would be eligible for bearing fruit. These latent buds, be it observed, had their origin in the axils of leaves borne around the basis of young shoots which existed perhaps many years previously; and although covered by successive layers of alburnum, such buds retain the power of bursting into active growth, when stimulated to do so by a sufficiently strong flow of sap, and especially when there is no more ready outlet provided in the form of prominently placed buds, for the pent up vital force of the plant. While on the other hand, if perfectly organized buds are present in abundance, these latent buds are rarely if ever stimulated into growth.

The vine, it will then be seen, bears fruit only on young shoots of the current year's growth; and these shoots may proceed from any part of the stem, whether old or young, wherever buds either prominent or latent exist. Under favorable circumstances every one of these young shoots may become fruit-bearing, whilst, if the circumstances connected with their growth are unfavorable, they may all produce leaves only and no fruit.

The most favorable circumstances under which vines can be placed, with the view to the production of fruit, are those in which the plants have secured to them a full and regular supply of sap, and in which at the same time the leaves are most thoroughly and favorably exposed to the action of light and air, so that this sap may be properly elaborated for the sustentation of the whole plant, roots and top. There is in the growth of plants a reciprocity of action between the roots and the leaves, which, in artificial cultivation, is too frequently overlooked. Without sap elaborated by the healthy action of the leaves the roots cannot long continue to be formed; and without healthy roots the leaves cannot be produced beyond the small extent of development which may be derived from the store of sap previously existing in the stem and branches, which store, when growth commences, is soon exhausted. So long, therefore, as the reciprocal action between roots and leaves is duly maintained, so long will the plant, whether it be a vine or a plant of any other kind, continue in health and vigor, all other conditions being favorable: but if this reciprocity is not maintained the vigor of the plant must decline.

Now it is by pruning that we can direct an increased supply of sap to particular parts, for by cutting away a considerable portion of a shoot, leaving only a few buds to receive the whole of the sap that would otherwise have been distributed amongst many, those few become stimulated to produce larger and more vigorous shoots and leaves and buds for future bearing than would have been the case if many more had shared the same amount of supply. By pruning, moreover, the amount of foliage may be so regulated, that the whole may be properly and duly exposed to light. In the case of vines.

it is from enlarged and vigorous shoots, leaves, and buds, the result of such judicious pruning, that large clusters and large berries are obtained.

But in endeavoring to secure these advantages of pruning, it is possible to err by carrying the process too far. Intent on exposing the leaf-surface to the light, the extent of that surface may be so much reduced as injuriously to affect the general vigor of the plant. The shoots may be so excessively thinned and shortened that the leaves which they can possibly bear may not present a surface area equal to one-fourth of that of the glass under which they are grown, and the consequence of this would be that the vines could accomplish little more than one-fourth of the general building up, so to speak, of their growth; the consolidation of their tissues, or in gardening phrase the maturation and ripening of their wood, which would be effected if foliage to the extent of the remaining three-fourths of the area exposed to light had been retained. This of course applies to established vines in which a vigorous root action exists.

A young vine left to its natural growth, and not subjected to any accident or artificial check, would present in each succeeding year a more extended leaf-surface; at least it would do so for very many years. It would be well if vines trained under glass could be permitted to do the same; but instead of this, the space being limited, they soon fill out that which is allotted to them, and no scope is left for an annual increase of foliage. Consequently, the amount of leaf surface must become stationary, sooner or later, according to the size of the structure, and the rapidity of growth in the vines. These should nevertheless be encouraged to fill the house with foliage as soon as possible, their annual increase being progressive; and never even when they have reached their limits should they bear a less amount of leaf-surface than in the previous year. This rule, if attended to, would do much towards preventing failures of the crop, and towards silencing the complaints we constantly hear about badly-made borders.

It may safely be affirmed that the first aim in vine-culture should be that of growing every year an abundance of foliage, *as much indeed as can be grown without over-crowding.* To

bear this amount of foliage there must, consistently with the above-named condition, be an aggregate length of shoots produced; but these may be either few and long, exemplifying what is called the long-rod system of pruning, or they may be comparatively numerous and short, which is the characteristic of the spur system of pruning. Good crops and fine fruit may be obtained by following either system; but as a rule, the largest bunches and berries are obtained from the long rods. The reason of this is, that more leaves can be grown on a long shoot than on a short one, and other conditions being equal the long shoot consequently becomes thicker towards the base; from this, when cut back at the winter pruning, a stronger bearing shoot is developed than would be the case from a smaller rod, and being stronger this is capable of former a larger bunch than could be obtained from smaller wood. As great a weight of fruit may, however, be obtained by the spur-system as by the other, for the bunches though smaller may be more numerous.

These general remarks will have afforded a general reply to the inquiries of our correspondent; but we may add a few more particular remarks on each of the questions propounded:—1. It is to be understood, that none of the shoots are superfluous provided they have space to expose their foliage duly to the light; but if there is not sufficient space to effect this, they must be stopped in their growth so that the leaves may not crowd or overshadow each other. 2. Although shoots may have no bunches on them, they must not be cut away, so long as they have space to grow. 3. The laterals between the bunch and main-stem should be cut off above their first joint; they might have been pinched off entirely at an early stage of their development. 4. The leading shoot should be permitted to grow as far as space will permit, but the laterals should be removed from it, except one just below the point at which it is found that it will be necessary to stop the leader itself; afterwards, this remaining lateral is to be pinched back to one joint.

POMOLOGICAL GOSSIP.

BONTE' DE ST. JULIEN STRAWBERRY.—Our friend and contemporary Mr. Mead, of the *Horticulturist*, states that he has seen for the first time this spring this rare variety, which promises to rival the Wilson in productiveness, and is certainly superior to it in flavor." He had only seen it in one place, and he asks, "Have any of our readers grown it?" Now this is too bad. We know Mr. Mead has to carry a big horn to hear well, but we did not think his eyesight was poor; otherwise he could not have overlooked the repeated notices of it in our pages for two years, and the fact that we exhibited specimens, both last year and this, before the Massachusetts Horticultural Society. Our old correspondent, though now editor, must not omit to "read up," otherwise we fear his journal will be behind the age. Only think of wishing "to hear more" about a strawberry introduced and widely disseminated for two years.

MORE NEW STRAWBERRIES.—The English cultivators continue to bring forward new varieties, some of which appear valuable. The following are noticed as possessing excellent qualities:—

Sanspareil. A long tapering fruit, with an uneven surface; the color of a dark blackish red, and the flesh is extraordinarily firm, solid, and red throughout, and very richly flavored. It forces well, and on account of its bearing carriage well, is adapted for forcing early and for market. It was awarded a certificate of merit by the Fruit Committee of the Royal Horticultural Society.

Eclipse. This is an early variety, coming in at the same time as Keens' Seedling, and a most abundant bearer. It forces remarkably well, producing large and handsome fruit, with a rich fine flavor, which is a character rarely met with in any other forced strawberry. In form, it is large, conical, inclining to a cockscomb shape, of a beautiful uniform light crimson color, with firm and juicy flesh. It was exhibited before the Royal Horticultural Society May 8 and 14, and awarded a first-class certificate for its superior merit.

Rifleman, (Ingram.) This fine strawberry is highly recommended for its large size, excellent quality, and the beauty of its fruit. It commences to ripen with the British Queen, (which it much resembles both in color and flavor,) and continues a long time in bearing, producing large fruit till the last of the season. The plants are of healthy habit, strong growth, and remarkable for the heavy crop of large fruit produced. It is also an excellent kind for pot culture.

Newton Seedling. A large fruit, of rich deep scarlet color, of a very superior flavor, very hardy, and one of the most productive strawberries in cultivation; continues fruiting until late in the season; the flesh is remarkably firm, consequently carries well and keeps better than any other variety.

British Sovereign, Lord Murray, Garibaldi, and Great Eastern are the names of four other new kinds offered for sale.

COCKLIN'S FAVORITE CHERRY.—A new variety, introduced by Mr. David Wilder, Jr., Cumberland, Pa. It is noticed in the Gardeners' Monthly as "an undescribed kind, and very distinct in many respects from any we know. It is not of the largest size, or of very striking superiority of flavor, but the very small stone in proportion to the amount of flesh gives it an advantage to the amateur over many popular kinds of larger size. To those who do not care how large the stone is, so that they get a 'big cherry,' this recommendation will, of course, have little weight."

PISTILLATE STRAWBERRIES.—Dr. Lindley says, in the Gardeners' Chronicle, that, with the exception of the Hautbois variety, if any one has ever yet discovered a sterile strawberry in England he has yet to hear of it. So says the Gardeners' Monthly, although we have not noticed such a remark. At any rate, if Dr. Lindley can get hold of a plant of the old Methven Scarlet, he will see a pistillate variety, though it may not be a sterile one. We hardly call a pistillate variety sterile.

HANDSOME GRAPES.—Mr. R. W. Turner recently exhibited very handsome specimens of the Golden Hamburgh and Muscat Hamburgh grapes, which attracted much attention; these, with other older kinds, were all remarkable specimens. The Golden Hamburghs were good bunches, large berries, and of

that rich golden hue which renders it worthy of the name. The Muscat Hamburgh is a very fine grape, not so high flavored as the Muscat of Alexandria, but decidedly musky, rich and excellent. The bunch is large, the color dark, and the berries of fine size. It was as thickly set as the Black Hamburgh.

ORCHARD-HOUSE FRUIT.—Very fine Washington and McLaughlin plums were exhibited by Mr. Walsh, gardener to G. G. Hubbard, Esq. They were of large size, fully ripe, and very handsome. Mr. Walsh also exhibited three plum trees in pots and tubs loaded with fruit.

ARBORICULTURAL NOTICES.

THUJA PENDULA, (*Thuja filiformis*.)—The addition of even one really hardy tree is a great gain, and must be hailed with pleasure by every planter. Especially is this so with the coniferous trees, so many of which, from China and Japan, warmer countries, render their hardiness doubtful until fairly tried. Such is the case with many of the very beautiful acquisitions recently made, which it is to be hoped will prove as hardy as that now under notice. It shows that we know but little of the peculiarities of trees and plants till a trial of their hardiness is made, and that the mere temperature of the climate is not always a sure guide. Thus, while some of the California trees and shrubs from very elevated regions are not hardy, many Chinese trees, where the temperature does not fall so low, are entirely so.

Thuja filiformis has long been known in our collection, but has generally been wintered in the greenhouse. Our own specimens, several years old and ten feet high, have been so protected; they are so very beautiful we were afraid to risk them out. We long ago recorded the fact of its being hardy at Newport, R. I., but then that locality is slightly milder than Boston. Last year, however, we left out one of our large plants and it stood the winter perfectly well; a test so severe that there can be no further doubt of its hardiness. It can

now be safely introduced into plantations, and there can be no more graceful pendulous tree, certainly no evergreen tree, which surpasses it.

We are glad, therefore, to be able to give the following account of this *Thuja*, by Dr. Hooker, which we find in the *Gardeners' Chronicle*. Its history is curious and interesting, and there must some doubt still remain as to its being a mere sport of *Thuja orientalis*:—

THUJA PENDULA.—During a visit to the Botanic Garden at Turin last autumn, my attention was drawn to a fine specimen of this shrub, bearing abundance of fruit, in all respects like that of *T. orientalis*. This recalled the singular history of the specimen of the same plant at Kew, for which I had been indebted to our curator, Mr. Smith; and I therefore asked M. Lisa, the intelligent head-gardener at Turin, what he knew of the origin of his plant. He knew nothing of its parentage, but, to my surprise, told me that *T. pendula* was only a sport of the common *T. orientalis*, and proceeded to show me five fine healthy and unmistakable young plants of the latter species, raised, as he assured me, from seeds of the *T. pendula*, which I saw growing in the garden. Observing my hesitation, he obligingly called his assistant to verify the statement, which I hence accepted as substantiated. To make assurance doubly sure, however, I have addressed a query on the subject to Prof. Moris, of Turin, who informs me that this is quite correct. He writes: “M. Lisa assures me that the little plants of *Thuja orientalis* (var. *accedens* ad var. *gracilem*, seu *Thujam Nepalensem* Auct.) were really raised from seeds of *T. pendula*. Hence *T. pendula* and *T. orientalis* are only forms of one type, the *T. orientalis*, L. This has been already remarked, and you will find it in Carrière’s “*Traité général des Conifères*,” pp. 99, 100.” As, however, the interest of the question turns very much on the historical origin of the *T. pendula*, which may not be known to many of your readers, I shall give this in Mr. Smith’s words; his acumen and accurate memory in such matters being well known.

“*Thuja filiformis*, Lodd. Bot. Reg. t. 20, for 1842. Loudon, Arb. Brit. vol. 4, p. 2461; *Thuja pendula*, Lamb. Pinus,

t. 67; and Seebold and Zuccarini, Fl. Jap. t. 117, are considered as the same. The old plant in the Royal Gardens, Kew, was purchased by Mr. Aiton from Loddiges & Sons, of the Hackney Nursery, and stands charged 1*l.* 1*s.* in a bill of 10*l.* 4*s.* for shrubs, dated April 3d, 1806. Twenty-five years ago, on inquiring into the history of this plant, William Loddiges told me that he picked it out with four others from a bed of seedling *Thuja orientalis*; they having attracted his attention as being different from the rest in the bed. One of these was sold to Mr. Aiton, one Mr. Lambert had, and he also told me where the others went, but I forget now. Neither George nor William Loddiges could account for these five plants being different from their fellows in the bed; but they hinted at the probability of their being hybrids, founding this idea on the fact of the seed having been collected from a group consisting of *Thuja orientalis*, *Juniperus virginiana*, and I think *J. chinensis*, which were shown me growing thickly together at the back of their palm-house. The greater number of the plants now in this country have been raised from the Kew plant."

Loudon, in his *Arboretum*, mentions the Kew plant, but says nothing of its history, except that Dr. Wallich is said to have recognized it in 1830 as a native of Nepal;* he, however, enters *Thuja filiformis*, Lodd. Cat. 1836, as a little known but different species. Lambert, who figures *T. pendula* from his own specimen, which was also received from Loddiges, says that he suspects it to be a native of the parts of Tartary near China, because that is the native country of the nearly related *T. pensilis*.

Let us now turn to the other pendulous species of *Thuja*; these are *T. pensilis*, Lamb., brought from China by Sir Geo. Staunton, which has pyriform or obovate cones; and *T. pendula*, figured in the *Flora Japonica*.

Judging from the figures and dried specimens of the Japan plant, this and *T. pensilis* are apparently forms of the same species; and as we have no evidence of either having been found in a wild state, it becomes a question whether both

* It may very probably be introduced into Nepal from China (as is *Cupressus funebris*), but it is certainly not a native of the Himalaya.

may not be sports of *T. orientalis*, propagated by the Chinese, as the *T. pendula* undoubtedly is of the same species cultivated by Loddiges. In support of this view I add a translation of an article in the *Revue Horticole*, which apparently refers to the same plant, and which, though confused and open to much criticism, seems explicit as to the main facts stated:—

“*THUJA ORIENTALIS FLAGELLIFORMIS*.—In an account of a horticultural journey, undertaken by our regretted colleague, M. Poiteau, inserted in the 19th No. of the *Annales de la Société Royale d’Horticulture*, (Oct. 1843,) it is stated: ‘A fact which concerns botany as well as horticulture has been lately observed with regard to *Thuja filiformis*, of which I have already spoken. M. A. Leroy possesses a strong plant of it in a bed of peat earth, and he has placed beside it a Chinese *Thuja* for the sake of comparison. This filiform *Thuja*, which differs so remarkably from the Chinese, was at first considered a distinct species, but it is now sold by an amateur of Laval, who states that he has raised it from seeds of the Chinese *Thuja*, of which it is only a variety; and it is true that this variety, if such it be, bears fruit resembling that of the Chinese *Thuja*,’ &c.

This fact is ascertained; it is not an hypothesis: our colleague, M. Jacques, was the first who received a plant of this singular hybrid, and he named it *Thuja orientalis flagelliformis*; since when, other horticulturists have called it *Thuja filiformis*, and *Biota pendula*.

M. le Comte de Reumigny informed M. Jacques that his father-in-law had on his estate near Laval (Mayenne), a *Thuja*, which appeared to him uncommon, and which had been raised amongst some seedlings of the Chinese *Thuja* by his gardener. M. Jacques begged M. de Reumigny to request his father-in-law to take care of this *Thuja*, and to take a cutting from it for him. This was done, and the first plant was sent to him at Neuilly, in 1822. M. Jacques carefully tended it; he placed it in the open ground, and grafted it as soon as the branches were strong enough to bear the operation.

It is therefore partly to M. Jacques that we owe the introduction of this interesting hybrid, which is described as third

of the genus *Thuja*, in the *Monographie des Conifères*, published in 1857.

Lambert, in a similar work, has since described and figured this tree under the name of *Thuja pendula*, and gives Japan as its native country. This is the more curious, as the Chinese *Thuja* also grows wild in those countries; and it would not be surprising if its seeds should have produced the same variety as in France. But, which is very singular, English authors (even Loudon, in 1842, in his *Arboretum*) say that this interesting tree has not been introduced into England, twenty years after it was known in France; and Lambert himself pretends that it only exists in Japan, although it is certainly the same tree which he has figured in his *Monographie*.

But the best proof of its being only a hybrid variety of the Chinese *Thuja*, is that though it produces fruit every year, no one has ever found a single fertile seed; they are always sterile. Finally, it is a very curious tree on account of its long filiform branches. It takes readily when grafted in slits on herbaceous wood, or better still, by approach on the *Thuja orientalis*, that is, the Chinese *Thuja*."

The author, it will be remarked, calls the *T. orientalis flagelliformis* a hybrid between *T. orientalis* and *T. filiformis*, apparently on no better authority than Loddiges had for suspecting his *T. pendula* to be a hybrid between *T. orientalis* and a juniper; nor does it seem to strike him that if, as he states, *T. filiformis* is only a sport from *T. orientalis*, so may *flagelliformis* be also. Again, he ascribes to Lambert's great work, published in 1832, a date subsequent to 1857, and adds that Lambert gives Japan as the native country of *T. pendula*, which is not the case. Lastly, he states that Loudon, "in 1842, in his *Arboretum*," says it has not been introduced into England, whereas that volume of the *Arboretum* which contains the description of *T. pendula* was published in 1838, and gives a full account of English plants at Kew, Boyton, Chelsea, and Dropmore; besides quoting *T. filiformis*, for which the original, and in 1836 the only, authority was Loddiges' Catalogue.

In conclusion, I think there can be little doubt but that the

Thuja pendula originated in Loddiges' nursery, whence all the plants known in Europe up to recent times were obtained, either directly or indirectly by cuttings. Whether it is a hybrid or a sport is not sufficiently proved, though from the statement of M. Lisa respecting the Turin plants, and the tenor of this in the *Revue Horticole*, I am inclined to suppose the latter. Whether also the Chinese *T. pensilis* and the Japan *T. filiformis* are indigenous species, or sports, or hybrids, also remains to be seen.

PINUS FRIESEANA.—Named after Mr. Fries, the eminent botanist of the University of Upsala, Sweden. It is the pine of Laponia, which Linnæus and Muhlenburg, without any further comment, classified with *Pinus sylvestris*. It however differs from the latter by growing higher up on the mountains than Norway spruce (*Abies excelsa*), whilst *P. sylvestris*, as a general thing, grows at a less altitude than *A. excelsa*. Further, by its cracking bark, which does not scale off like that of *P. sylvestris*. Lastly, the leaves are more rigid than *P. sylvestris*, and their axis from the branches is a larger one. (*Regensberger Flora.*)

SPIRÆA REGELIANA.—This is a new and very pretty hybrid, apparently between *S. Douglasii* and *Fortuni*. The flowers are deep rose color, and are disposed in rather short, dense spikes. The foliage is neat and the growth vigorous.

THUJA HOVEYI.—Our correspondent, A. D. Gridley, in a notice of the nurseries of Messrs. Hovey & Co., thus refers to this new variety: "Here we had our first satisfactory view of the new arbor vitæ styled *Thuja Hoveyi*. It is an accidental seedling, which sprung up in their grounds among a multitude of plants raised from seeds of the native arbor vitæ. The foliage is nearly or quite as delicate as that of *Thuja aurea*; it is laid in the same flat plaits or folds, upright and compact together, and has the same golden tinge. While it is as dense and as hardy as the Siberian, it is much more refined and beautiful."

PTELEA TRIFOLIATA VARIEGATA.—The variegated variety of the *Ptelea* (or Hop tree, as it is called by some) is a really fine acquisition. The foliage is very distinct, being deeply blotched with white. In addition to its masses of seeds, it

forms a conspicuous and handsome ornamental tree, well worthy of a place in every plantation. Several young plants, three or four feet high, are just now very attractive objects.

NEW JAPANESE PLANTS.—In recent numbers of our Magazine we have given a very full account of such new trees and plants introduced from Japan, by Mr. Veitch, as have been described. We have also copied brief notices of others which have been sent home by Mr. Fortune, and exhibited at a late show of the Royal Horticultural Society. As several of them are likely to prove hardy in our climate, having stood out during the last severe winter in Great Britain, we copy the following additional information respecting them. We are gratified in being able to state, that a gentleman who was residing in Japan last spring, at the time Mr. Fortune was collecting his plants, procured duplicates of several of them, which were forwarded to Boston in a Wardian case, and about half the number, some ten or twelve in all, arrived safely, and are now growing vigorously, so that we hope soon to see them introduced into our own gardens, to which, whether hardy or half hardy, they will be great acquisitions.

With reference to the hardiness of these plants, Mr. Standish stated that the *Sciadopitys verticillata* and the *Retinosporas*, *Thujopsis dolabrata*, and the different forms of *Osmanthes*, were natives of the hills of Yeddo, and consequently would be remarkably hardy; as a proof of which he mentioned that Mr. Barron had the *Thujopsis* standing in the open ground last winter, without the slightest injury from frost, though the serious amount of destruction amongst evergreen shrubs and trees, caused by the past winter around Derby and Nottingham, and indeed almost everywhere in the midland counties, is well known. This collection of Mr. Fortune's Japanese plants has been already exhibited at the Fête on the 5th of June, and the more important of them had on that occasion received awards. These latter, which were now necessarily passed over as having been already judged by the society, consisted of the following varieties:—

Retinospora obtusa. A fine evergreen tree of the arbor vitæ race, forming, according to Siebold, a straight bole 60 to 80 feet high. Of this, a nice bushy specimen was shown. It

had flat flabellate dark green spray, which, from the small size of its scale-like foliage, has a good deal of general resemblance to some of the smaller circinnate species of *Selaginella*. These were both green-leaved and variegated-leaved forms, the latter being blotched with white; one of them, the green-leaved or typical form, had received a silver Banksian medal, and the variegated-leaved form (*R. obtusa variegata*) a certificate of merit.

Retinospora lycopodioides. Under this provisional name was included, on June 5, in the miscellaneous portion of the group, a rather pretty-looking plant (others of which, shown by Mr. Veitch as *Cryptomeria* sp., had received a certificate of merit). It is apparently a plant of spreading growth, with the branches terete and leafy all round: distinguishable, therefore, from the *Retinospora* and *Thujopsis*, already mentioned, by a feature analogous to the difference which exists between the true species of *Lycopodium* and those now referred to *Selaginella*. The leaves of this plant are small obtuse green scales, which produce a kind of papillate appearance on the branches.

Retinospora argentea. Another provisional name for a plant with densely glaucous or silvery spray, which color was especially marked on the lower surface. The plant was not enough developed to show its true character.

Sciadopitys verticillata. One of the finest conifers of Japan, or, after the deodar, of all Asia. Mr. Standish exhibited two nice bushy young plants in perfect health, a foot high, showing the aspect presented by the long linear blunt ended foliage, and also its peculiar whorled arrangement. Some of the older leaves on these young specimens measured 3 inches in length. This had received a silver Knightian medal at the exhibition on June 5th.

Thujopsis dolabrata variegata. This was a fine variegated variety of *Thujopsis dolabrata*, apparently of a lax and spreading habit, the branches flattened and glaucous beneath, very much resembling those of some of the free-growing kinds of *Selaginella*. This variety differed from the ordinary form in having its twigs freely blotched with white, producing a pretty and well-marked variegation. It had obtained a silver Banksian medal at the great exhibition already alluded to.

Podocarpus variegatus. A dense growing little bushy shrub, thickly clothed with short broad ovate shining leaves, variously striped with white. It was a neat-looking plant, and had received a certificate of merit on June 5th.

Podocarpus microphyllus variegatus. This had the leaves linear-lanceolate, and sparingly striped.

Taxus longifolia. A provisional name for a long linear-leaved shrub or tree, which, if hardy, will prove a very handsome plant. The plant was, however, quite small.

Bambusa variegata. A pretty tufted striped-leaved grass, apparently dwarf, and perhaps useful in formal gardens. This had already received a certificate of merit.

Aucuba japonica. Of this species, which is familiar in English gardens in the variegated state, there was included in this fine collection the original or green-leaved state, both male and female plants; the latter bore orange-colored oblong-ovate berries, about the size of the pomes of the large-fruited species of *Cratægus*. It had on a previous occasion obtained a certificate of merit.

Eurya sp. This was distinguished as a "broad-leaved *Eurya*;" it had moderate-sized elegantly-acuminated *Camellia*-like foliage, broadly margined, and more or less blotched inwards with white, and the young foliage comes out stained with a fiery-orange color, which gives the plant a bright, extremely interesting, and showy character. It received a first-class certificate.

Raphis flabellata variegata. Of this well-known elegant dwarf palm, the present form had the leaves striped more or less with white.

Gardenia radicans fol. variegatus. A beautiful little greenhouse shrub, with long narrow leaves edged with white, and bearing the well-known fragrant flowers of this species. The plant had been previously exhibited before the committee by Messrs. Veitch & Son.

Daphne variegata, with the leaves narrowly edged with white. It was distinct from the plants already in cultivation, but was not sufficiently developed.

Elæagnus japonicus variegatus had the leaves neatly edged with cream color.

seed has no doubt been brought by the birds from some place where it may be plenty ; found here on dry strong ground, in open sunshine ; from two to four feet high ; several stems arising from the same root ; flowers white, in a long spike ; in bloom a long time. July to September.

35. *CHELONE GLABRA*, Snake-head. Can only be cultivated with success in wet ground ; valuable only for its curious spike of flowers, which, as its name suggests, looks like a snake's head ; where one has a pond or brook they can have a collection of water plants with no further trouble than the planting ; this is the only kind found here. Aug. and Sept.

36. *SPIREA TOMENTOSA*, Hardhack. An upright-growing shrub, plenty here in some localities ; have seen it growing where the roots were under water, also on dry sandy soil, adapting itself to any situation ; it is thickly covered with handsome leaves, making it a handsome shrub when out of bloom ; flowers purple, in spikes, which continue a long time in bloom. Though not so handsome as some of the exotic kinds, I can only say it is our best native. July and August.

37. *DESMODIUM CANADENSE*, Bush Trefoil. A handsome perennial, with a woody root, throwing up stems from two to four feet high, terminating in racemes of reddish-purple flowers ; leaves handsome, legumes jointed ; found on dry ground. July to September.

ORNAMENTAL-FOLIAGED PLANTS.

BY THE EDITOR.

WE have in our last volume alluded to the importance of ornamental-leaved plants for the decoration of the garden, which are now attracting so much attention abroad, particularly with the French and Belgian cultivators, whose climate is so much more like our own than that of Great Britain, where the sky is too cloudy and the temperature too cool to admit of that rampant growth which alone brings out the real beauty of these plants.

Showy as bedding plants are, and valuable for immediate effect, we have rather neglected other things for these ; espe

cially where masses of foliage are needed to relieve the eye from the surfeit of gay and gaudy colors. A long avenue with its ribbon borders, or a neat parterre in arabesque form, with its masses of flowers, are beautiful objects in their place. But in connection with the lawn and shrubbery large masses of varied foliage are more appropriate, and, judiciously grouped, create an effect at once picturesque and beautiful.

Since the attention of cultivators has been turned in this direction, they have selected from the many plants such as are suited to this purpose; repeated trials having enabled them to choose only those that will flourish under garden treatment. The first of these were the Cannas, one old species of which, the Indian Shot, (*C. indica*), has long been sparingly cultivated as an annual. But the beauty of its foliage led to a search for other species, and with such success that no less than *fifty* species and varieties have been introduced, some of which are almost gigantic in aspect and foliage. With these have been associated the *Caladium esculentum*, a native of the South, with leaves nearly three feet long and two feet broad, and other plants of similar habit.

We have now before us a beautiful engraving, representing these plants as they appear when in full growth, and we have prepared a copy of it, so far as the size of our page would admit, to show how truly ornamental they are, (FIG. 22.) We have also at present growing in our grounds two groups of these plants, of which the engraving is almost an exact representation. They are composed of Cannas, *Caladiums*, and *Gladioli*, planted in circles six or eight feet in diameter, near the lawn, presenting a striking contrast with the *Verbenas*, *Lantanas*, and *Scarlet Geraniums*. The *Gladioli*, with their tall spikes of gay flowers towering up amidst the huge foliage, enriching and enhancing the elegance of each group.

Until these newer sorts of *Canna* are introduced into our collections, we recommend the *C. Warscewiczii*, desirable on account of the rich purplish hue of its large leaves; also *C. limbata*, *C. Annei*, and *C. gigantea*. They are easily raised from seeds planted early in the season in the greenhouse or hotbed, potted off and ready for planting the middle of May; or plants may be procured of the nurserymen, as can those of

Caladium esculentum. The soil should be made very deep and rich by the addition of very old manure or leaf mould, and, when well established, should have liberal supplies of water, without which the growth is diminished. By the first of August they will have attained the height of five feet or



22. ORNAMENTAL-FOLIAGED PLANTS.

more, forming a dense mass of immense foliage, enlivened by the scarlet and orange flowers of the Cannas: if a few strong-growing Gladioli are interspersed, the group will be increased in effect throughout the autumn.

At another opportunity we shall give a brief description of several of the best Cannas, and some other plants suitable for forming groups of ornamental-foliaged plants.

IS THE HEATH A NATIVE PLANT?

BY THE EDITOR.

THE recent discovery of a locality where the Scotch Heath (*Erica vulgaris*) has been found growing wild, has created quite an interest among botanists and cultivators generally. We have already, under our reports of the Massachusetts Horticultural Society, alluded to the exhibition of a plant in full bloom, by Messrs. Hovey & Co., which was found by Mr. Dawson, one of their gardeners, growing in Tewksbury, Mass. The plant was apparently four or five years old, and in full bloom, presenting an ornamental aspect at once novel and beautiful. But it was not so much its beauty, and the peculiarities of its locality and growth which mostly interested all who saw the plant. It has been supposed that the Heath was not a native of the United States, no botanist having recorded one, though Loudon, on the authority undoubtedly of Pursh, or some other botanist, states that it is indigenous to Nova Scotia and Newfoundland. Hence its discovery at this late period, in a position where it could seem scarcely possible for it to have been introduced accidentally, was a surprise to all.

Deeming the subject one of great interest, we visited Tewksbury, where it was found growing, where we discovered some twenty or thirty plants, apparently from eight to twelve years old, all in bloom; this was in the first week of August; they commenced blooming in July, and would remain in bloom a week or two longer. The place where these plants are found is on a little knoll, in a meadow, half a mile or more distant from any house, surrounded by the common shrubs which fill our low lands. Interspersed with the heaths were numerous plants of *Spiræa tomentosa*. A small stream or rivulet winds through the meadow, which, at some seasons of the year, overflows its banks. Here, covering a surface of a quarter of an acre, were scattered the plants, all nearly of the same size, and, as we have remarked, seemingly about eight or ten years old. No very old specimens were to be seen, or even young ones, except seedlings of one year; showing that

they had not yet seeded much, or that the place was not favorable to their growth, being too thickly covered with grass. In fact, it was only under one or two of the plants that we noticed seedlings of last year.

The question arises, where did these plants come from? are they indigenous or introduced? As they had not been noticed till last year, and as the owner of the land knew nothing of them, having purchased the farm the present year, we could learn nothing more than this,—that a near neighbor, a Scotchman, first observed the heath a year ago, and had gathered the flowers and distributed them among his friends at Ballard Vale, one of whom was an acquaintance of Mr. Dawson's, who directed him to the locality. How long the plants had been growing there no one knew. No old nor decayed plants were seen, as is usual where the heath covers immense tracts of land in Great Britain; still, there may have been in former years, before the land was originally cleared; and now that circumstances were favorable, the buried seeds may have vegetated again. There can be no possible reason to suppose it to be introduced, unless the seeds floated down the stream and lodged here in some spring freshet. Yet the question occurs, where did the seeds come from? We do not ourselves know of a single instance where this heath has been introduced and cultivated in this neighborhood, except in our own garden, where it flowered abundantly ten years ago. At that time we supplied the late Mr. Kittredge of Tewksbury, who resides about half a mile from the locality where this heath was found, and whose garden adjoins the same stream, with a hundred or more pear trees. Could it be possible that the seeds of the heath were carried with the soil to Tewksbury, washed out upon the stream and floated down to lodge where the plants now grow? This is a speculative hypothesis, but in no other way can we believe it to be introduced, if introduced it was, as several cultivators contend. Otherwise it is a genuine native plant, and should be so determined by botanists, as we believe Dr. Gray admits.

Whether indigenous or introduced, is a question which most concerns botanists. Cultivators will look upon its discovery as a most important event, for it at once introduces

an *entirely hardy* heath to our gardens, and henceforth it should be cultivated by all who would possess one of the most beautiful plants. Interspersed with rhododendrons, azaleas and kalmias, which flourish in a peaty soil, the heath will add to the elegance of such groups, and render them gay at a season when the blooms of the former are gone, and their broad green foliage needs the embellishment of flowers.

General Notices.

GREAT ROSE EXHIBITION.—The great Rose show of the Royal Horticultural Society was held on the 10th of July, and we copy the following report, as affording all the information in regard to both new and old roses. The exhibition is said to have been the finest ever made:—

Among collections of 96 varieties the best was again contributed by Mr. Mitchell of Piltown; Mr. Keynes was second, Mr. Hollamby third, and Messrs. Paul & Son fourth; Mr. William Paul was awarded an extra prize. In these exhibitions we remarked excellent blooms of Victor Emmanuel, a purplish slate-colored kind; General Jacqueminot, Triomphe de Rennes, yellow; Gloire de Santenay, Baron Gonella, a promising new sort; Sénateur Vaisse, in brilliant condition: Clement Marot; Paul Ricaut, Anna Alexieff, Madame Charles Crapelet, beautiful rosy purple; King David, rich dark velvety crimson; Madame Boll, a fine new rose; Eugénie Lebrun, dark crimson; Victoire de Magenta, purplish crimson, in this instance rather small in size; Jules Margottin, a rose which must ever stand at the head of its class; Impératrice Eugénie; Elise Sauvage, yellow; Triomphe d'Amiens, a most beautiful new rose; M. Hector Jacquin, and Louise Magnan, a white hybrid perpetual, of good size, form, and substance.

In the class of 48 varieties excellent collections came from Messrs. Cranston, Cant, Keynes, Laing, Francis, Hollamby, Paul & Son, and Turner. Among these were fine blooms of Madame Charles Crapelet, Louis XIV., one of the richest and best of the new roses; Madame Boll, Madame Bonnaire, a good white hybrid perpetual; Victor Verdier, Louis Chaix, Charles Lawson, Prince Leon, Oriflamme de St. Louis, a kind nearly as brilliant as General Jacqueminot; Comtesse Cecile de Chabillant, Lord Raglan, and Anne Alexieff; Duc Decazes, a fine dark rose; Arago, Paul Ricaut, General Castellane, William Jesse, Chenédolé.

In the class of 24 varieties, 3 trusses of each, Mr. Keynes showed the best collection, in which were fine specimens of Madame Vidot, Victor Verdier, Souvenir de Leveson Gower, Triomphe des Beaux Arts, Madame Pauline Villot, beautiful rosy crimson; Gloire de Dijon, Anna Alexieff, Virginal, Mathurin Regnier, Madame de Cambacérès, Mdlle. E. Appert, Souvenir de Malmaison, M. Miellez, Madame Hector Jacquin, La Ville de

St. Denis, Dr. Brettonneau, Madame Knorr, Lord Raglan, Jules Margottin, Evêque de Nîmes, Triomphe de Rennes, Léon des Combats, and Madame Rivers. The next exhibition of 24 came from Mr. Fraser, and consisted of Madame Charles Crapelet, glowing rosy crimson; Mathurin Regnier, Pauline Lanzezeur, Mdle. Thérèse Appert, Sénateur Vaisse, brilliant, large, and fine; Sophie Cocquerel, Cleostine, Maria Portemer, Lord Raglan, Victor Verdier, Duc d'Ossuna, small compact rose; Virginal, in lovely condition, the white and delicate pink centre forming a beautiful contrast; Gen. Jacqueminot, Madame Vigeron, Madame Cambacérès, Léonice Moise, Duchess of Norfolk, Jules Margottin, Madame Rivers, Madame Knorr, Louis XIV., Comtesse Cecile de Chabillant, Leveson Gower, and Madame Vidot. Mr. Laing of Twickenham sent Souvenir de la Reine d'Angleterre, Duchess of Orleans, Boula de Nanteuil, Lord Raglan, Baronne Prévost, Gloire de Dijon, Géant des Batailles, Queen, La Ville de St. Denis, Madame Rivers, Paul Perras, General Simpson, William Griffiths, Madame Hector Jacquin, Paul Dupuy, Victor Verdier, Lamartine, Prince Leon, Madame de Cambacérès, Souvenir de Malmaison, Crested Moss, Comtesse Lacépède, and Anna Alexieff. Mr. Cattell and Mr. Cant also showed good collections.

In the class of 24 varieties, one truss of each, the first prize was awarded to Mr. Keynes of Salisbury, for fine blooms of Boula de Nanteuil, Evêque de Nîmes, Souvenir de Malmaison, Lafontaine, a large fine showy rose; Gloire de Dijon, Victor Verdier, Juno, Prince Léon, Mathurin Regnier, Comtesse Cecile de Chabillant, Gloire de Vitry, Virginal, Madame Hector Jacquin, Madame Vigeron, Jules Margottin, Madame Rivers, Madame Knorr, Dr. Brettonneau, Alexandrine Bachmeteff, and Queen of Denmark. Mr. Turner of Slough, to whom the second prize was awarded, sent Comtesse Cecile de Chabillant, Louis XIV., Anna Alexieff, Virginal, Leveson Gower, Auguste Mie, Léon des Combats, Vicomtesse Decazes, Baronne Prevost, Duke of Cambridge, Sénateur Vaisse, Victor Verdier, Pauline Lanzezeur, Madame Domage, Jules Margottin, Gloire de Dijon, Duchess of Norfolk, Comte de Paris, Eugene Appert, General Simpson, Mdle. Thérèse Appert, General Jacqueminot, Pius IX., and Gloire de Vitry. Among those sent by Mr. Cattell were Cloth of Gold, the only bloom we saw of this variety.

In the amateurs' class of 48 varieties the first prize was awarded to Mr. J. T. Hedge, Reed Hall, Colchester, who sent among other fine blooms Madame Cambacérès, Virginal, Anna Alexieff, Gloire de Dijon, Duchess of Buccleugh, Charles Lawson, Victor Verdier, Mathurin Regnier, Rubens, Oriflamme de St. Louis, brilliant, but a little thin of petals; Leveson Gower, Jules Margottin, Madame Vidot, Juno, Coupe d'Hébè, Clara Sylvain, Charles Duval, Lafontaine, large and very showy, but a little thin in the centre; Mathurin Regnier and General Jacqueminot. Miss Crawshay of Caversham, who was second in point of merit, contributed a nice collection, in which were fine flowers of Paul Ricaut, Géant des Batailles, small; the old, but yet good rose, Robin Hood; Gloire de Dijon, Madame Vidot, Prince Albert, Alexandrine Bachmeteff; Charles Lawson, Souvenir de Malmaison, La Ville de St. Denis, Lord Palmerston, Paul Perras, Evêque de Nîmes, the

last a brilliant small rose. Mr. Hollingsworth and Mr. Brush also showed well in this class.

Of 24 varieties Mr. Corp had a fine collection, a few of the best in which were Auguste Mie, General Jacqueminot, Gloire de Dijon, Madame Knorr, General Castellane, Prince Leon, Lord Palmerston, and Leveson Gower. Among Mr. Hedge's flowers, which took the second prize, we noticed Coupe d'Hébé, Charles Lawson, Mathurin Regnier, Gloire de Dijon, Anna Alexieff, General Jacqueminot, and Charles Duval. Among Mr. Moffatt's 24 blooms, which were placed third, were Brennus, Comte de Nanteuil, Mathurin Regnier, Souvenir de Malmaison, Chénédole, and Gloire de Santenay. Mr. Worthington, who had equally fine blooms, sent among others Senateur Vaisse, Prince Leon, Victor Verdier, and Anna Alexieff. Mr. Mercier also showed in this class.

In exhibitions of 18 sorts, the Rev. W. F. Radclyffe of Ruston, was placed first; he had beautiful blooms of Triomphe de Rennes, La Ville de St. Denis, Paul Dupuy, Gloire de Dijon, Sir J. Franklin, a brilliant variety; Gloire de Santenay, Souvenir de l'Angleterre, Louis XIV., Comtesse Cecile de Chabillant, Mrs. Elliott, Géant des Batailles, Lafontaine, Mathurin Regnier, Solfaterre, Gen. Jacqueminot, and William Tell. Mr. Moore, of Horsell, near Woking, was second; among the sorts which he showed were fine flowers of Safrano, Auguste Mie, Gloire de Dijon, Lord Raglan, Souvenir de Malmaison, Louis Odier, and William Griffiths. From Mr. Hedge and Mr. Brush, who were placed third and fourth, came Narcisse, Delphine, a kind like Niphetos; Charles Lawson, and other sorts, all of whose names have already been mentioned.

Of 12 varieties the best came from Mr. Hedge, who sent Charles Lawson, in good condition; Madame Knorr, Lafontaine, purplish rose; Delphine, Vandael, dark mulberry; Juno, La Ville de St. Denis, Gloire de Dijon, Madame Hector Jacquin, Coupe d'Hébé, General Jacqueminot, and Charles Duval. Equally fine blooms also came from Mr. Corp, who sent Madame Knorr, Lord Raglan, Gloire de Vitry, Pauline Lanzezeur, Paul's Victoria, a fine large delicate pink variety; General Jacqueminot, Virginal, Comtesse Cecile de Chabillant, Leveson Gower, Juno, Gloire de Dijon, and Evêque de Nîmes, the last small, but brilliant in color. The Rev. H. Helyar, Yeovil; Mr. Brush, Mr. Child, and Mr. Moore, also furnished good blooms in this class, some of the best of which were Kean, Madame Ory, Emperor de Maroc, Madame Duchere, Louis Bonaparte, and Madame Legras, the last a small white sort.

New roses of 1860-61 were shown by Messrs. Fraser, Cant, Standish, and Keynes. Among these, the best were, Madame Standish, pink-shaded rose; John Standish, velvety-purplish rose; Rev. Reynolds Hole, rosy salmon, robust and free flowering, new in shade of color, and very promising; Gregoire Bourdillon, like a small Géant des Batailles; André Desportes, purplish rose and very fragrant; Madame Furtado, rose, compact and beautiful; Marguerite Appert, like M. Vidot; General Washington, good, in the way of Robin Hood; Comte de Falloux, brilliant but small; John Waterer, bright promising sort; Triomphe d'Amiens, as shown mot-

bled crimson, compact and very fine; Sénateur Vaisse, a glorious rose of 1860; Mdle. Bonnaire, a good addition to white hybrid perpetuals; La Boule d'Or, fine golden-yellow tea; Madame Charles Crapelet, beautiful purplish rose; Rubens, a good white tea; Victor Emmanuel, purplish slate, a good addition to the Bourbon class; Gloire de Santenay, crimson; Louis XIV., rich velvety crimson, a charming rose; and Duc de Magenta, the last a creamy-white tea rose. Others were also shown, but not in good condition.

Two or three exhibitions of moss roses were contributed, but they were not good. The best among them are still the crested and common moss.

STRAWBERRIES IN ENGLAND.—The strawberry season, with the exception of the Alpines, is now over here. My friend Mr. May, of the National Provincial Bank, at Blandford, came with a noble basket of Queens, to add to my Trollop's Victoria, Alpines, Bicton White Pine, and Belle Bordelaise; and with these we yesterday finished the season, which has been the most abundant that I can remember. The flavor of strawberries has been better than last year; but still it has not been so good as in a dry West Indian summer. I have destroyed a great many English and foreign strawberry plants, heavy croppers, as not distinctive or better than those we have already. I will mention no names, as, in other situations, where the sun rises and shines all day on the bed, the flavor may be better than in my garden, which slopes from the rising sun. With regard to flavor, I have eaten nothing so rich and good as Filbert Pine, tasted in Mr. May's garden. Lest I forget it, let me say, (and Mr. John Keynes, I doubt not, will bear witness to my words,) that the plants and crops of such sorts as are grown by Mr. May were this year such as would be equalled by few and probably surpassed by none. Last year I took my friend, Mr. Gloede, who, I regret, was not able to come this year to see me, to review them; and, splendid as the crops were then, I fancy they were still better this year. The crops of the Queen, Filbert Pine, Nimrod, Eleanor, Trollop's Victoria, (it colors in his garden as deep as Eugene Appert), Cinquefolia, a rich, fine and good strawberry, but dwarf-habited and shabby in foliage, were very heavy. If any of your readers should travel through Blandford in the strawberry season, I am sure my distinguished brother Fragrarian would be gratified by a call, and I am still more sure the visitor would be gratified. I saw in his garden and tasted some fine rich berries of Eliza Vilmorin, raised from the Queen, Oscar, Eugenie, and a very rich and good seedling of his own, which I hope he will introduce to you some day as the "May King." It is of the Filbert Pine flavor and quality. I believe he found the seedling in his raspberry bed.

As regards my own strawberries, I must appeal to the tastes of the twenty-four gentlemen who dined here on the 5th of July. We had thirteen dishes, all picked fruit. The finest for size and beauty and uniformity of growth were the Eleanors; and the best flavored were Rivers' Eliza and Magnum Bonum, like but hardier than the Queen in wet valleys. However, as regards the Queen, where she likes the soil she cares for nothing

else. My noble plants in another garden (once half dead here) are as high as a man's knees, dark and unfreckled in foliage, and have borne the noblest fruit. The aspect is severe N. E.

The strawberries that I recommend are much the same as last years:—

1. **HAUTBOIS.** The Black Hautbois, small, but the muskiest and richest of all strawberries, and Belle Bordelaise, the most certain and most accomplished of its race. I have had fine crops of the last under my south wall, in the centre of the garden, and under the north wall, where the berries were by far the largest. The monstrous Hautbois, good, is not of such fine flavor and quality as the two former. They are all three easily growable and perfectly hardy, beautiful in foliage and good.

2. **PINE-FLAVORED.** The Bicton White and Brittany White Pine, slightly roseated, are good, ornamental and interesting. The second is the firmest and highest in flavor, but the first is the best cropper. Mr. Nicholson's White Seedling, like the Bicton Pine, is good.

3. **ALPINES.** There is nothing better than the old White. The Whites are, in all instances, larger and better, and better croppers, than the Red. The Red and White bush Alpines are good, and give no trouble. They must be raised occasionally fresh from seed, and the old stools must be divided and fresh planted.

4. **OTHER STRAWBERRIES.** I still recommend May Queen as first early, ripe here the 30th of May. A strawberry that is ripe, even two days before any other, must be valuable; because, as a beggar once told me, there is "no taste in nothing." Oscar, Wonderful, and Eugenie are the three best British novelties here on trial, and are worthy of a place, and I fancy will give satisfaction. The finest-flavored of all the Queen, and her race, viz., Carolina, Superba, Rivers' Eliza, Myatt's Pine (probably the Queen's parent), Scarlet Pine, Magnum Bonum, Hendrie's Seedling, Nimrod, Rival Queen (hardy, and very rich and handsome, but a fickle cropper), Eliza Vilmorin, and La Chalonnaise. To these add Filbert Pine (not grown here), and you have the eclectics of fine flavor and quality. For dependence there is nothing "out," of fine flavor, better (for me) than Rivers' Eliza. Wonderful, apparently the same as Sir Walter Scott, is a very excellent strawberry, hardy, great cropper, and of fine flavor. Ingram's Prince of Wales, Trollop's Victoria, are great favorites with me, and retain flavor in adverse weather. These two, Rivers' Eliza and Wonderful, are sure to winter well and crop heavily. If Wonderful is distinct from Sir Walter Scott, it is not far from the best novelty here.

Now a word about Foreign Strawberries. My valued friend, Mr. Gloede, says we are bigoted and prejudiced against foreign strawberries. This does not apply to me; I judge of strawberries as I find them here. Permit me to say, that strawberries, which come from fine climates, require time to acclimatize, and should not be judged hastily. Moreover, the discrepancy between foreign and English judgment arises from the differential powers of the sun. In France, I find that while they are burnt up I am drowned with wet, and lack sun. This, of course, will greatly affect the opinions formed of strawberries, and render the judgments diverse. I have great

pleasure to speak now of a foreign strawberry, that is really good and valuable in every respect, and not inferior to the best English novelty here; indeed, I am not sure that it is not the best novelty here, viz., *La Constante* (De Jonghe, Belgium.) It is a dwarf and stout hardy plant, the fruit is numerous and handsome, firm, juicy, and of fine refreshing flavor. Mr. Rivers, in a letter in reply to mine speaking highly of it to him, says: "I have been much interested in *La Constante*; it is so large, finely shaped and colored, and with a nice, brisk, unobjectionable flavor. It is, out-and-out, the best market strawberry ever seen, being so firm." He also, together with Mr. Turner, speaks highly in every respect of the *Crimson Queen*, (English), which I have not yet tried. With regard to *La Chalonaise*, (raised by Dr. Nicaise, in France), Mr. Rivers says, "it is a large and very fine-flavored strawberry, almost as good as the *Queen*."

Let us hope, then, that, with these admissions, we shall free ourselves from the charge of prejudice. *La Reine*, last year, (also raised by De Jonghe), I thought a high-flavored, heavy-cropping strawberry. I destroyed with guano my older plants, and the three fresh ones sent late in the fall have not cropped. From my recollections of last year, added to my experience this, I have no hesitation in saying that these are two admirable foreign strawberries. Add to these the *Black Hautbois*, *Belle Bordelaise*, and *White Brittany Pine*, endorsed by me, and *La Chalonaise* and *Eliza Vilmorin*, both *Queen*-descended, respectively endorsed by Mr. Rivers and Mr. May, and we have "gained" from abroad seven good strawberries, besides the useful red and white bush Alpines.—(*The Florist*.)

BEGONIA INCARNATA.—As a useful plant for cutting flowers from, during winter, this species of *Begonia* or *Elephants' Ear* has no superior, being one of those plants which the commercial florist grows in quantity to supply cut flowers for bouquet-making. Its color is good by artificial light—a point of great importance, and it produces flowers in great abundance, which are graceful either on the plant, or cut and placed in the bouquet or basket. It is a native of Brazil, and luxuriates here in an artificial temperature during winter ranging between 50° and 65°, the latter only from sun heat, and it is advisable to keep the night temperature somewhere near 50°, much higher its beauty is of short duration, while, if occasionally as low as 45°, it will cause no injury. It will also flower well in the window, although somewhat lighter in color from absence of light.—(*Gard. Monthly*.)

MANAGEMENT OF JUNIPERS.—Wherever I have seen the juniper grown, I have noticed many ugly contrivances for keeping them together; for when suffered to grow in the usual way they fall apart in heavy rains, and particularly in snow storms, leaving a very ragged and unsightly appearance. Sometimes hoops are used, and wire, but usually they are tied together by rope and twine, at the best, making but poor specimens.

Some years ago, I thought to remedy this by allowing only one leader to grow up, and having several pretty large and troublesome specimens, with the usual trouble of many dividing leaders, I cut away all but one, and

severely pruned in the side branches of the remaining one. They pushed out a new growth the next spring, and are now beautiful specimens. Since then I carefully cut out all but one leader, every season, in these arborescences and similar evergreens, besides taking out all very strong side shoots, and now have no trouble in even the heaviest storms. Thinking the hint might be useful to others, I offer it to you.—(*Gard. Monthly.*)

IPOMÆA LEARII.—One day, on descending to the base of a rocky cliff on one of those low hills, I found the ground for some distance in front of the cliff covered with that most beautiful climber *Ipomœa Learii* in full bloom. This was certainly the finest floral display made by any single plant I had yet seen, for not only was the ground, for some distance from the base of the cliff, studded with its large blue flowers, but the adjacent shrubby and herbaceous vegetation was ornamented and festooned in like manner.—(*Notes on the Plants of Peru, in Gard. Chron.*)

Gossip of the Month.

CORRECTION.—In our August number, in our leading article on Strawberries, we stated that Mr. J. O. Locke was the first to cultivate the Hovey's Seedling as an annual crop. We accidentally overlooked the error. It was Mr. J. O. Wellington we intended to name, as we did in a subsequent portion of our article, and we deem it proper to make the correction, in justice to Mr. Wellington, who has been the most successful grower of Hovey's Seedling, as he is a thorough cultivator in everything he undertakes.

MASSACHUSETTS HORTICULTURAL SOCIETY.—The Annual Exhibition of this Society will be held in its own Hall, corner of Washington and West streets, commencing Tuesday, Sept. 17, and continuing till the 20th. Liberal premiums are offered, and, although an unpropitious year for fruit, it is hoped there will be a good exhibition.

NEW YORK STATE AGRICULTURAL SOCIETY.—The next Annual Fair will be held in Watertown, Jefferson Co., Sept. 17, 18, 19, and 20. The usual premiums for cultivators throughout the State of New York are offered, including fruits and flowers.

BROOKLYN, N. Y., HORTICULTURAL SOCIETY.—This flourishing society will hold its annual exhibition commencing on the 18th, 19th and 20th of September, at the Academy of Music in that city. Liberal premiums are offered for fruits, plants and flowers, and they are open to all exhibitors whether members of the society or not. Schedules will be forwarded by

addressing C. B. Miller, Esq., Corresponding Secretary, 29 Broadway, New York.

THE RHODE ISLAND SOCIETY for the Encouragement of Domestic Industry will hold an exhibition of fruits, flowers and vegetables at the Railroad Hall, Providence, on the 11th and 12th of September. Liberal premiums are offered, and the exhibition will undoubtedly be very fine.

HETEROCENTRON ROSEUM.—This is one of the best winter-blooming plants; always in flower, and of free growth and easy treatment under ordinary greenhouse culture. The flowers are of a delicate rose color, appear in large clusters, with good footstalks, and hold their color well. For winter bouquets it is an invaluable addition to a collection.

HERBACEOUS PÆONIES.—A correspondent of the Gardeners' Monthly, writing from Paris, thus appropriately alludes to the Pæonies, which, next to the rose, are everywhere cultivated, and the most conspicuous ornaments of the garden. "Why not cultivate the pæonies and their hundred varieties, —a tribe of flowers which seems not to be known with you, and still a flower which has the kindness to light up your garden before the roses, fuchsias, &c., have come into bloom? Why this ignorance or neglect of the pæonia?"

Our collection of pæonies contains upwards of *one hundred varieties* of all shades of color, some of the flowers of which are nearly a foot in diameter, and beautifully marked and tinted. We have no show in the garden,—not even the roses,—which is so truly magnificent. Yet with all these to be obtained in some of our nurseries, we rarely see in cultivation anything more than the old Double red or white or rose colored, stuck away in some neglected part of the border. Why, such sorts as *festiva*, *festiva maxima*, and *sulphurea*, for delicacy of tints, or *Delachii*, *violacea superba* or *fulgida* for intensity of coloring, surpass anything among the choicest plants. Next to the rose, the pæony deserves the attention of every lover of flowers.

STRAWBERRIES NEAR WASHINGTON CITY.—I have had a very fine and abundant crop of strawberries the past season. The most profitable variety has been the *Jenny Lind*. I had them very early and in large quantities in market in advance of everybody else. I ought to have made several hundred dollars every morning from the sale of them, and but for the times should have done so. However, I cannot complain, as I succeeded much better than I expected.

The *Jenny Lind* is the most reliable early variety I have ever cultivated; I shall cultivate it almost exclusively for an early crop until I can get a better. It is of a very beautiful color, very early, and tolerably productive; good size and flavor. I shall cultivate *Jenny Lind* and *Prince's Magnate* very extensively. They embrace every quality necessary to render them profitable for market. If I were confined to two varieties, with my experience I would unhesitatingly prefer these two. The *Magnate* is very large, productive, and of fine color.

I have fully tested the merits of Wilson's Albany. It is quite large in size, and the most profuse bearer I ever saw. Notwithstanding its great productiveness, I shall not cultivate it to a great extent. It is exceedingly acid and defective in the strawberry aroma. It overbears, and I think in dry seasons will only mature a small portion of its fruit of good size.

I have not seen any variety which continues to afford such a succession of large berries as Prince's Magnate.—J. H. BAYNE, *in a letter to Wm. R. Prince & Co., Flushing, L. I.*

Societies.

HORTICULTURAL SOCIETY OF MONTREAL.

The annual meeting was held on the 7th of March last. The annual report was read, expressing gratification at the increasing success and progress of the society, and the continued interest taken in it by all classes of society.

At the request of the society, Messrs. J. Ferrier, Jr., John Torrance, Henry Thomas, and Harrison Stephens threw open their greenhouses from time to time, through the winter, for the inspection of the members, and the board of managers express their obligations to these gentlemen. After recommending monthly exhibitions for roses, strawberries, &c., the following officers were elected:—

President, G. Desbarats, Esq.
 Vice President, S. J. Lyman, Esq.
 Treasurer, L. A. H. Latour, Esq.
 Secretary, L. Thayer, Jr., Esq.

FRUIT GROWERS' ASSOCIATION OF EASTERN PENNSYLVANIA.

The second annual report of this young association has been received, containing reports and discussions at the semi-annual meeting in June, 1860, and the annual meeting held at Reading, on the 6th, 7th, and 8th of February, 1861.

The discussions are quite interesting, though nothing particularly new was elicited. The Wilson's Albany strawberry received 25 votes as the best for *general culture*, Hovey's Seedling 8, and Triumph de Gand 7. For *amateurs' culture*—Triumph de Gand 11, and Hovey's Seedling 7.

At the annual meeting the following officers were elected:—

President, Dr. J. K. Eshleman.
 Vice Presidents, Joseph E. Mitchell, Phila.; J. B. Garber, Columbia;
 Samuel Miller, Lebanon.
 Recording Secretary, Gustavus Heins, Downington.
 Corresponding Secretary, Charles Durgen, Avondale.
 Treasurer, Robert Otto, West Chester.

Massachusetts Horticultural Society.

Saturday, Aug. 3d, 1861.—An adjourned meeting of the Society was held to-day,—the President in the chair.

J. C. Gilbert, J. N. Coffin, and B. B. Davis were elected members.

Adjourned one month to Sept. 7.

AWARD OF PREMIUMS FOR FRUITS.

STRAWBERRIES.—For the best display, to Hovey & Co., \$10.

For the best collection, to Hovey & Co., \$6.

For the best two quarts, to Thos. Walsh, for Boston Pine, \$5.

For the second best, to W. H. Barnes, for Brighton Pine, \$4.

GRAPES.—For the best, to R. W. Turner, \$8.

For the second, to Mrs. F. B. Durfee, \$6.

For the third, to G. G. Hubbard, \$4.

Saturday, Aug. 17th.—*Exhibited.* Cut flowers from the President, Hovey & Co., Evers & Comely, W. H. Spooner & Co., J. McTear, F. Parkman, J. Nugent, Barnes & Washburn, and others. The specimens of Phloxes, Gladiolus and Petunias, for premium, were exceedingly fine, and embraced some of the newest and finest varieties. Among the Verbenas of Messrs. Hovey, which contained 25 sorts, were Mad. Jacotot, Polyphemus (Pages), Germania, Marginata, Wyoming, Pet, &c. Mr. McTear had a good display, but they were mostly seedlings.

Messrs. Hovey & Co. exhibited a new Achimenes, named "Dazzle," which was well worthy of such a title, it being of a brilliant scarlet. Also specimens of two varieties of Erica vulgaris, viz., alba and purpurea, both hardy and taken up from the open ground.

AWARD OF PREMIUMS.

PHLOXES.—For the best 10 varieties, to Messrs. Hovey & Co. for the following:—M. Bardin, M. Hardy, Triumph de Twickel, (a splendid striped sort,) M. Heincq, Mad. Lierval, La Candeur, Mad. Marseau, Julia Roussel, Mad. Clerget, and a seedling, \$5.

For the second, to Evers & Comely, \$4.

For the third, to Barnes & Washburn, \$3.

GLADIOLUS.—For the best, to W. H. Spooner & Co., \$5.

For the next, to Hovey & Co., \$4.

For the next, to Barnes & Washburn, \$3.

PETUNIAS.—For the best display, to J. McTear, \$3.

For the next, to Hovey & Co., \$2.

For the next, to M. Trautman, \$1.

CUT FLOWERS.—For the best, to Hovey & Co., \$5.

For the next, to Evers & Comely, \$4.

For the next, to W. H. Spooner & Co., \$3.

Horticultural Operations

FOR SEPTEMBER.

FRUIT DEPARTMENT.

With the exception of one week in the early part of August, the weather has been unusually warm and favorable, bringing up vegetation rapidly, and with the timely rains, swelling the small crop of fruit and invigorating the growth of the trees.

GRAPE VINES in the grapery will soon be at rest, and will require but little attention beyond giving an abundance of air in all good weather, to thoroughly ripen the wood, Vines in greenhouses should be trimmed of superfluous wood just before the plants are introduced. Vines in pots for fruiting next year, should be placed out in a warm, airy place, so as to mature the wood.

FRUIT TREES may yet be summer pruned, cutting off superfluous laterals, and pinching in young shoots which have freshly grown. Now is a good time to thin out superfluous branches where too much crowded.

STRAWBERRY PLANTATIONS may yet be made; but the earlier in the month the better. Recently planted beds should be frequently hoed, and kept clear of weeds. Old plantations should have attention. Plants for forcing should have the pots plunged in a warm border to ensure a stocky growth.

PEACH TREES should be budded.

FRUIT should be gathered early, as there are few kinds that are not better for being ripened in the fruit room. Thin out all small and ill-shaped specimens upon late varieties.

FLOWER DEPARTMENT.

With the advent of September the labors of the garden become more important. Preparation should now be made for securing the winter stock, as well as much that is wanted for spring. Begin early with the work, before cold nights and light frost injure the more tender things. Take up and pot such plants as require it, and put in cuttings of various bedding plants for spring use. Prepare frames for protecting tender plants. Look after soils, and prepare a stock for winter use.

CAMELLIAS should now be got ready for removal to the house. Wash the pots, and top dress the plants if they require it; tie up neatly and wash or syringe the foliage well, to give a fresh and healthy appearance. The last week in September they should all be housed.

AZALEAS require similar care: the slightest white frost is apt to injure the buds, and cold rains check the growth of the plants. Tie into shape all specimens, and remove to the house in good season. Such as have been kept in the house to set their buds must now be removed to a warm half-shady aspect, for two or three weeks. See that they are free from the thrips and red spider.

CHRYSANTHEMUMS should be freely watered now, occasionally using

liquid manure. Tie up the plants to neat stakes, and thin out the buds if large flowers are wanted. Remove to the house before frost.

CALLAS should be repotted, and have a liberal supply of water.

PELARGONIUMS will need attention. The whole stock should be immediately repotted and have the protection of a frame till well established. Pot off young plants, and give the same treatment.

CYCLAMENS should be repotted and placed in a frame where they can be sheltered from heavy rains.

NEAPOLITAN VIOLETS, for winter blooming, should be potted this month.

CHINESE PRIMROSES should be cleared of dead leaves, repotted, and removed to the house.

CINERARIAS should be repotted, and kept in a frame as long as the weather will admit.

HEATHS AND EPACRIS, planted out in the open ground, should be taken up carefully and potted. Keep them out in a frame as long as possible.

IXIAS, SPARAXIS, and other winter flowering bulbs, should be potted and sheltered in a frame.

SALVIAS, STEVIAS, and other winter blooming plants, should be repotted.

PLANTS of all kinds, planted out in the border, should be taken up and potted.

CUTTINGS of Verbenas, Heliotropes, and all other bedding plants, should now be put in for a spring stock.

CALCEOLARIAS, and other seedling plants, should be potted off, and have due attention.

GLOXINIAS AND ACHIMENES, as soon as the room is wanted for other plants, should be placed away on a dry shelf for the winter.

FERNS should now be freely watered, and have a shady situation in the house.

STOVE plants should be looked over, to keep them free from insects of all kinds.

RUNNING PLANTS should be neatly tied up, and all superfluous shoots cut out. Roses should be pruned in short, while Bignonias and Passion flowers should be laid in at full length.

MIGNONETTE in pots or boxes should be thinned out well, and have a warm sunny situation, and be sparingly watered.

FLOWER GARDEN AND SHRUBBERY.

LAWNS. These should not be neglected; continue to roll and mow. Hoe, rake, and roll the walks, and keep everything neat and clean.

DAHLIAS will now be in full bloom; continue to prune off superfluous shoots, and mulch and water in dry weather.

NEAPOLITAN VIOLETS should now be planted in frames.

PANSIES, from seeds sown last month, may be planted out so as to have the protection of a frame.

WHITE LILIES may now be planted.

HERBACEOUS PLANTS may be taken up, divided, and reset.

ERYTHRINAS should be taken up before heavy frosts, the tops cut off, and removed to the greenhouse or cellar, placing the roots in dry earth.

ORCHARD HOUSES.

THE severity of the last winter, destroying as it did all the peach, plum and cherry buds, and greatly injuring those of the pear and apple, has renewed the interest in orchard-house culture, and directed attention to this more certain mode of obtaining yearly crops of fine fruit. We have heretofore not been a great advocate of orchard houses, except for the tender fruits,—the peach, the nectarine, the apricot, the fig, and the grape,—because, only twice in twenty-five years have our crops of hardy fruits failed to be abundant and good, unless we except the plum, which has not been in any way owing to the climate, but to the depredations of the curculio and the spread of the black knot. Hence we have thought that orchard houses would serve but little purpose for these fruits, and though a pleasant species of culture for wealthy amateurs, would be of slight advantage to cultivators generally. As regards the above first-named fruits, we have ever been of the opinion,—which we have constantly urged upon our friends,—that the only sure way of securing an abundance of them was their culture in pots under glass.

Our previous article on this subject will be found in our last volume, (XXVI. p. 289), and we need scarcely add that what we then urged as an objection to the usefulness of orchard houses, as understood generally, has proved true. We remarked that we had objections to them for various reasons, one of the most important of which was, that “the trees cannot be wintered safely in them; they are nearly as cool at night as the temperature outside; while the sun heat by day, without constant airing, is equivalent to an English vinery. Hence the trees, unless well protected, are chilled by frost and excited by heat, either of which alone would be injurious to the crop, and in combination destructive of the trees.” This has proved to be the case. Mr. G. G. Hubbard not only lost his entire crop of peaches and apricots, but the trees of the latter were so much injured as to require heading in.

The same cold which destroyed the peach buds in the open air, killed them in the orchard house, which was not sufficient to protect them without the aid of a flue or hotwater pipe. Mr. H. H. Hunnewell's peaches, growing in the ground and trained to trellises in his cold peachery, also had their buds destroyed in the same way, showing that there is but little if any more safety in a cold house than in the open air. The term orchard house, therefore, applied to these fruits, is rather out of place, and the old and well-known one so common in Great Britain, of the "peach house," or "peachery," is that which is best suited to the culture of these fruits. The pear, the apple and the plum resist the extremes of cold so well that there is little or no danger, and an orchard house would be protection enough to ensure a crop; the fact that Mr. Hubbard's plum trees, in the same house with the peaches, bore abundant crops, proves this. Cultivators therefore who would amuse themselves with the growing of these fruits in pots, will find the orchard house a valuable aid in their gardening operations, while they will possess, when erected of suitable dimensions, one of the most agreeable places of resort in early spring, when the chilly days allow of but little gratification in out-door operations.

We think it may be therefore pretty well settled, that orchard houses for the very fruits we cannot depend upon are not a success, treated in the ordinary way: perhaps with suitable protection,—a complete covering of the entire house with mats or straw or other material,—might obviate the defect; but then this is attended with trouble, and in the end would be more expensive than a flue or hotwater pipe, which could be used at periods of extreme cold to counteract its effects. Such at least appears to be the result of the first experiments with orchard houses. Without, however, discarding them as useless, let us rather devise means to make them applicable to the objects for which they were intended, and if possible to every variety of fruit, both tender and hardy, ignoring the name, only that we are enabled to secure annual crops of the finest fruit.

In Great Britain, another champion of orchard-house culture has taken the field with Mr. Rivers, and has produced a

little treatise upon the subject, which is said to be a very valuable aid to the cultivator. It appears that in Great Britain the orchard houses have been a failure this year, the trees in many places bearing no better than those in the open air; and this is attributed to the cold and wet autumn of 1860. We should hardly suppose this could be the case, but are rather inclined to the opinion that it is precisely the same cause which operated here, viz., the extreme cold. But as English cultivators have never suffered from winter cold, they fail to recognize the real cause. The thermometer fell from 8° to 13° below zero, and as it was very sudden and very early, (in December), the trees in orchard houses had little or no more protection than those in the open air, and lost their buds and consequently their crops. Dr. Lindley thinks this susceptible of a simple explanation, which is, that it was owing to unripened wood. But a little reflection and experience such as American cultivators repeatedly have, would show this was not the cause. Such a severe winter will not probably occur again in Great Britain in many years. If it does, orchard houses will be of little use, unless aided with fire heat.

A recent visit from Mr. Chamberlain, the successful cultivator of orchard-house fruits at Newport, R. I., with some details of his practice, and his rather remarkable system of growing fruit trees in baskets, induces us to hope he will give us the results of his experience, which indeed he has promised to do. We shall then revert to the subject again. In the mean time we copy the following notice of Mr. Pearson's pamphlet, that our cultivators may see how he estimates the importance of orchard houses:—

It is to be feared that this year's experience will be unfavorable to orchard houses. It is certain that in many places the trees are barren of fruit, and in no better condition than such as are out of doors. Nevertheless we are assured that when "proper care" has been taken there is no falling off in productiveness. What then is the reason that A. has plenty and to spare, while B. looks at his sterile trees in despair? and what is meant by "proper care?"

Upon the last subject, Mr. Pearson, of Chilwell, has undertaken to enlighten the public in a useful pamphlet, entitled "A few Hints on the Construction and Management of Orchard Houses," and we are glad to see that Mr. Rivers is joined at last by so practical a man. He endorses the opinion long ago expressed in our columns that the old fashioned gardeners who set their faces against these buildings committed a great mistake, as some have found to their cost. Upon this point his observations are such as our horticultural friends will do well to bear in mind.

"Now let me say a word to those gardeners who, having learnt their business, are afraid to commence a culture they do not understand, or who really do not believe in the orchard house. Whatever you may do or say, they will be built. Gentlemen will not be satisfied to be without fruit, when their neighbors have plenty; or to have two or three kinds only, instead of a variety of sorts, lasting over a long period, and varying in appearance and quality. You will find it pleasanter, in cold spring weather, to be under glass, than nailing trees against a wall. For four or five months the orchard house is no trouble. If walls already exist, they will be very convenient for choice pears, and you will have a chance, by the same means, of furnishing Ribstone Pippin apples, White Calville, &c., fit to be eaten. In advertisements we shall soon see, 'Wanted, a gardener familiar with orchard-house culture.' These structures, being without fire heat, are such agreeable places to walk in during cold east winds, and afford so much comfort to the aged and infirm, that they will be built, and young gardeners will do wisely to learn how to manage them."

It is perfectly clear that those who wish to ensure a crop of such fruit as peaches and nectarines and apricots must cease to believe in walls, except in very favorable situations. Mr. Rivers long since showed that for 140*l.* it was possible to cover 2400 square feet, roughly indeed, but serviceably, and Mr. Pearson now states that he has "built a house covering 2700 feet square, on 18 inches of brick work above the surface; the walks are paved with black and buff quarries, the bricks laid in Portland cement, and the whole finished in a

style fit for any garden, at a cost of 230*l.*, or about 1*s.* 8*d.* a square foot of ground covered." Of this house he gives a photograph. Like us he points out the advantage if not necessity of taking care that the dimensions are ample enough to secure the interior against too low a night temperature at the blossoming season.

"An orchard house should not be less than 20 nor more than 30 feet in width. No fire being used to keep out frost, a wide house, containing a large body of air, will cool more slowly than a narrow one; and plants blooming in a 20 foot house would be safe from frost, when those in one 14 feet wide might be in danger. If a house be more than 30 feet it must have a ridge and furrow roof, which, though necessary when large spaces have to be covered, is more expensive and much heavier in appearance. To grow fruit of fine flavor, light is the great requisite; and that the sun should shine equally as possible on both sides, it is desirable that your house be span-roofed, if possible, having one end towards the south. I have no hesitation in saying, the span-roof is the best form for either the growth of vines or plants. Vines, in a lean-to house of any height, require a ladder to prune or gather the fruit, and there is always a tendency to produce the finest foliage and fruit on the upper part of the rods; whilst by being trained across a span-roof, the sap is checked, the growth rendered more equal, and both vines and fruit are more within reach. Plants in a lean-to house invariably draw towards the light; whilst in a span-roofed house, they have the advantage of light on all sides."

That we have arrived at a knowledge of the best way to manage an orchard house we are far from asserting. On the contrary, it is probable that we have as yet but a few glimpses of what will be hereafter fundamental rules. Take, for example, the mere growth of the trees in pots; how is that best managed? and for how many years will potted trees last? Upon this last point Mr. Pearson says:—"I have seen trees which have never been repotted, but only top-dressed for nine years, and which are as healthy as ever. My belief is, that the average life of orchard-house trees will be greater than those trained on open walls, subject as these latter are to so

many injurious influences. The orange has long been cultivated in pots and tubs, and trees are in existence, in perfect health, hundreds of years old, as all know who have visited Versailles. As an experiment, and to show what might be done with a peach tree, I had a small plant of Royal George peach potted in what is called a two-quart pot; it was not allowed to root through the bottom, and it was well fed by manure water; thirteen peaches were ripened, and these were amongst the best fruit in the house. Early in the autumn, before it shed its leaves, it was taken up, all the earth shaken from its roots, and placed again in the same pot, and it has now seven fine peaches on it. The plant has only three small shoots, is about eighteen inches in height, and is in better health than last year."

As to their management it is already evident, as Mr. Rivers long ago pointed out, that plenty of skilfully-prepared manure water, applied at the right time, is one of the most indispensable elements of success. Mr. Pearson's advice is as follows: "When the fruit is the size of walnuts—say the middle of June—give them manure water once a week—not drainings from a manure yard, or guano water, but made in the following manner: Take a mixture of sheep, horse, and cow manure, in equal parts, or any of them, if you cannot get all three, and put it into a trough or old tub; then cover it with scalding water, to kill all insects and their eggs; afterwards add water and let it settle, using the supernatant liquor. When you add fresh water, stir it up from the bottom, and let it settle again. The value of these manures, if employed separately, is in the order I have placed them."

The losses sustained this year in orchard houses are we think susceptible of a simple explanation, which itself shows that much has still to be learned from experience. There can be no doubt that the reason why peaches, &c., in orchard houses either did not blossom, or, blossoming, were unable to stone their fruit, was the unripened wood. Continual rain last year kept the air constantly damp, and absence of sun increased the mischief. The temperature was extremely low for the autumn; plants, instead of halting in the career of growth, drying and hardening their tissues, organizing flower

buds and laying up food on which those buds could feed when the period allotted by nature arrived, continued to push, gained water as fast as they lost it, provided no store of future food, and generated abortions instead of flowers. To this one consequence only was possible; and that we have witnessed in the failure of the crop of fruit. Where houses were crowded, in consequence of the trees being planted out, or where extraordinary means were not taken to secure full sunlight, such as it was, and to provide as free a circulation as was obtainable, the mischief has been greatest. Where long experience pointed out a remedy for the defects of the season, the failure has been comparatively small. This is the case at Sawbridgeworth, where Mr. Rivers has had a tolerable crop of peaches, notwithstanding adverse influences, as the astrologers would say. To this we ourselves bear witness, having received specimens of a capital new seedling peach, better in flavor than the Early Ann, ten days earlier, and, as we learn from Mr. Rivers, very much hardier, the trees in the open ground having survived, when all others were killed. We would suggest that this should be called "Rivers's Earliest." It is not the smallest merit of the orchard house that it thus enables seedlings to be brought forward rapidly, and their fruit to be well ripened so as to show the true quality, even without the aid of a wall. Out of a multitude of seedlings coming forward at Sawbridgeworth, many another of sterling value will doubtless soon present itself in a state to be satisfactorily judged. Of one of these, called the Early Albert, there is no doubt of the excellence.

CULTIVATION OF EVERGREENS.

BY EVELYN.

THE LARCH AND THE CEDAR.

WE have but two more hardy genera of the Abietinæ, viz.: the *Larix* and the Cedars. Of the Larch there are only two species which are of any importance—one, the common European Larch—*Larix Europea*—and the American Larch—L.

Americana—The other species seem to be but varieties, each genus containing a pendulous variety. The Weeping European Larch is very rarely found, though there are several large trees of it in the Duke of Athol's celebrated plantations of this tree. It is distinguished by the very pendulous habit of its branches. The American Weeping Larch, or Black Larch is a smaller tree found in the central parts of the American continent, and differs from the European Weeping Larch, as the principal species differ; the American tree, in each case, having shorter leaves and smaller cones. We have reason to suppose, that all were originally one species, which have been modified by climate and other influences, and sported into many varieties. The principles put forth by Mr. Charles Darwin, in his work on the Origin of Species, ought, we think, to check the propensity among naturalists to multiply species. This disposition particularly characterizes our scientific botanists, who, grounding their distinctions upon some arbitrary standard, have in frequent instances, separated two plants into distinct species, which the common sense of all the rest of mankind would consider perfectly identical.

The larches differ from all the other *Abietinæ* in their deciduous habit. Their wood resembles the spruce and the fir rather than the pine, but it is the hardest and most durable of all, in durability not being exceeded by the oak. It is really one of the most valuable of the coniferous trees. It is extremely hardy, a rapid grower; it has the ability to sustain itself and produce good timber on the most barren, rude, and bleak exposures; and has proved its qualities under culture, by the noble experiments of the Duke of Athol, who, with his two immediate successors, planted over fourteen millions of European larches, upon a little more than ten thousand acres of the most hilly and unprofitable soils, and the coldest situations.

The rate of growth of the larch in England is from twenty to twenty-five feet in ten years from the seed, and nearly as great in the Highlands of Scotland, where the climate is much colder. In the course of fifty years it will attain the height of eighty feet or more. The rate of growth of the American larch is said to be less rapid, but it equals the Euro-

pean tree in the strength and durability of its timber, and in its capacity to endure the severest cold, and to thrive in the poorest soil. One great recommendation of the larch is its superior value for improving the character of pasture land, in which it is said to exceed almost all other trees, the locust perhaps excepted. The cause of this superiority is undoubtedly the very fine quality of the foliage, which, being soft and deciduous, mingles intimately with the surface of the soil, before it can be blown away by the wind.

We have spoken chiefly of the useful qualities of the larch. It is also regarded everywhere as a highly ornamental tree, the European species being generally preferred on account of the long flowing character of its foliage. We must confess, however, that we prefer the American larch, as an object in the landscape. The foreign larch is undoubtedly the best to cultivate for its timber, because it is a more rapid grower.

Loudon furnishes a table of mountain planting, by which it appears that the space occupied by the larch exceeds greatly in height the site of every other useful tree, above even that of the fir and the Scotch pines.

With regard to the planting of the larch, we may remark, that the cones may be gathered any time during the winter, and kept in a dry place till a week or two before the time of sowing, which must be done as soon in the spring as the ground can be made ready. It is said that the cones of the larch are full-sized in the autumn, but that the seeds do not ripen till sometime afterwards, maturing on the tree even in the coldest of weather. The seeds will retain their vitality in the cones four or five years.

The seeds should be sown on well-prepared soil, about a quarter of an inch apart. When the soil is manured, care must be taken to avoid the use of fresh stable or barn-yard manure, which is exceedingly injurious to the young plants. All the manure must be old and well rotted. After the seeds are sown, a light roller should be passed over the bed, to press them firmly into the soil, and they should then be covered about half an inch deep, more or less, according as the soil is stiff or friable. When the seedlings are two years old, they should be planted out into the nursery beds, or in the

soil into which they are to remain. Autumn is the season chosen for transplanting them in England, on account of the habit of the tree of vegetating very early in the spring.

One circumstance should always be regarded in the culture of the larch; this is its habit of spreading its roots very near the surface of the ground. On this account it will not bear much spading about its roots. It is better never to disturb the soil under it, after it has been finally planted out, but to confine all our attention, as it regards the soil, to mulching and top dressing.

Very little pruning is required by the larch, whether in plantations or in one's enclosures. It will bear the pruning knife well, however, and may be needful sometimes, when it is desirable to alter the form or tendency of the tree. Cutting the roots of a growing larch is very liable to produce the rot, a disease which seems, like the *pleuro pneumonia* in cattle, to be one of the consequences of artificial treatment. The rot generally commences at the root and proceeds upwards, though in some instances, the contrary course has been observed. The disease can hardly be detected by the outward appearance of the tree; but when it is cut down, the interior is found to be hollow and decayed.

Mr. Emerson says there are large surfaces, particularly in Essex and Bristol Counties, of bleak, rocky, barren hills, or wet plains, almost useless, which might be redeemed by planting with larches, and for this purpose he recommends the European species. The soils suitable for the larch are around rock with a covering of loam, particularly where the rock is jagged or cleft; gravelly soils, in which the water does not stagnate, and which are never entirely dry.

The tree which in this country bears the name of Cedar is a cypress. The true cedars belong to the *Abietinæ*, and are unknown to this continent. They are natives of Asia and Africa, and resemble the larch more than any other genus of *Abietinæ*. There are only two well-known species; these are the *Cedrus Libani*, the well-known cedar of Lebanon; and the *C. Deodara*, or Indian cedar. The cedar of Lebanon is well known in a historical sense; but as it has never till lately been introduced into this country, it has been seen by none

of our inhabitants, unless they have travelled abroad. It is a majestic evergreen tree, leaves tufted like those of the larch, cones about three inches long and two broad. It is a native of Syria and Mount Lebanon, and of the northern mountainous parts of Africa. The cedar has long been cultivated in England, as an ornamental tree, on the estates of the nobility, and many magnificent specimens are to be seen in that country. Some of them are said to be quite fastigate in their growth, while others have their branches depressed at their insertion in the trunk, giving them a sort of pendulous habit. They differ also in height, some being dwarfed and bushy, and others tall with but few branches. These differences seem to be due to soil and situation.

Generally speaking, it is a wide-spreading tree, above 50 feet high, and covering a space with its branches, the diameter of which is sometimes greater than its height. The horizontal branches are very large also in proportion to the trunk, when growing as a standard; they are disposed in distinct layers or stages, gradually decreasing so as to form a pyramidal top. When the tree is old it loses this spiry shape and becomes flattened at the top, making a very picturesque appearance on many old estates.

The cedar is not a rapid-growing tree, though under favorable circumstances it has been known to keep pace with other coniferous trees. Hence it is not to be recommended for any other purpose than for ornament or scientific curiosity. The wood of this tree is of a reddish color, light and porous, easily worked but not durable. It could not have been the wood, therefore, which among the ancients was so celebrated for its imperishable nature, that they believed the resin that issued from it had the power of rendering incorruptible everything that was steeped in it. This timber must have been the Deodar cedar or a cypress, the wood of which in its sensible qualities resembles the cedar.

Loudon says that "as an ornamental object, the cedar is one of the most magnificent of trees, uniting the grand with the picturesque in a manner not equalled by any other tree in Britain, either indigenous or introduced. On a lawn, where the soil is good, the situation sheltered, and the space ample,

it forms a gigantic pyramid, and confers dignity on the park and mansion to which it belongs; and it makes an avenue of unrivalled grandeur, if the trees are so far apart as to allow their branches to extend on every side. If planted in masses it is like any other species of the pine and fir tribe, drawn up with a straight naked trunk, and scarcely differs in appearance from the larch, except in being evergreen."

The cedar of Lebanon thrives well in dry gravelly soils when the roots can have access to water, as on the dry banks of a river, or the slopes of a mountain. It will grow in any place in which the larch can be made to thrive. But its wood is not so tough, and it would, therefore, suffer more from the winds in bleak mountainous exposures. It does not seem to require a rich soil. The cones are not ripe till the autumn of the third year from the flower; but like those of the larch, to which this tree bears a great many points of resemblance, they will keep five or six years after being taken from the tree, so that there is no risk in purchasing them.

Like other resinous trees they should be sown in light rich soil, and receive a shallow covering of earth, less than an inch in depth. The plants rise three or four inches the first year, without any tap roots, which are produced afterwards, as the plants increase in size. At the end of the first year, the young plants may be removed to the nursery lines, or into small pots. In commercial nurseries, in England, they are every year shifted into larger pots till they are sold. But in private grounds they are removed at the end of the second or third year to their final situation. The cultivator must be very careful of the leading shoot, as the cedar suffers more than any other tree of the kind by the loss of it. The young plants will bear the pruning knife, however, if the leading shoot is properly secured.

The Deodar cedar (*C. Deodara*) is generally believed to be the cedar of the ancients; as, in the quality and durability of its wood, the character and quantity of its resin, the scent produced by it, we observe the characteristics of the cedar of the ancient authors. The wood is very compact and resinous, and bears every mark of being the identical timber used in the buildings of the early ages. It does not possess the hardi-

hood of the cedar of Lebanon, though no complaints are made of it, on this score, in the neighborhood of London. Some young trees which have been planted in Massachusetts suffered the loss of their tops during the hard winters of 1856 and 1857.

Loudon seems to believe it hardy: but the English climate does not possess the intensity of our own, even when the average winter temperature may be as low as ours. He says, writing some years since: "In England the specimens of it are at present small; but the feathery lightness of its spreading branches, and the beautiful glaucous hue of its leaves, render it, even when young, one of the most ornamental of the coniferous trees; and all the travellers who have seen it full grown, agree that it unites an extraordinary degree of majesty and grandeur with its beauty. The tree thrives in every part of Great Britain where it has been tried, even as far north as Aberdeen; *where, as in many other places, it is found hardier than the cedar of Lebanon.* It is readily propagated by seeds, which preserve their vitality when imported in the cones; but scarcely otherwise. It also grows freely by cuttings, which appear to make as handsome plants as those raised from the seed." The mode of cultivating it agrees exactly with that recommended for the cedar of Lebanon.

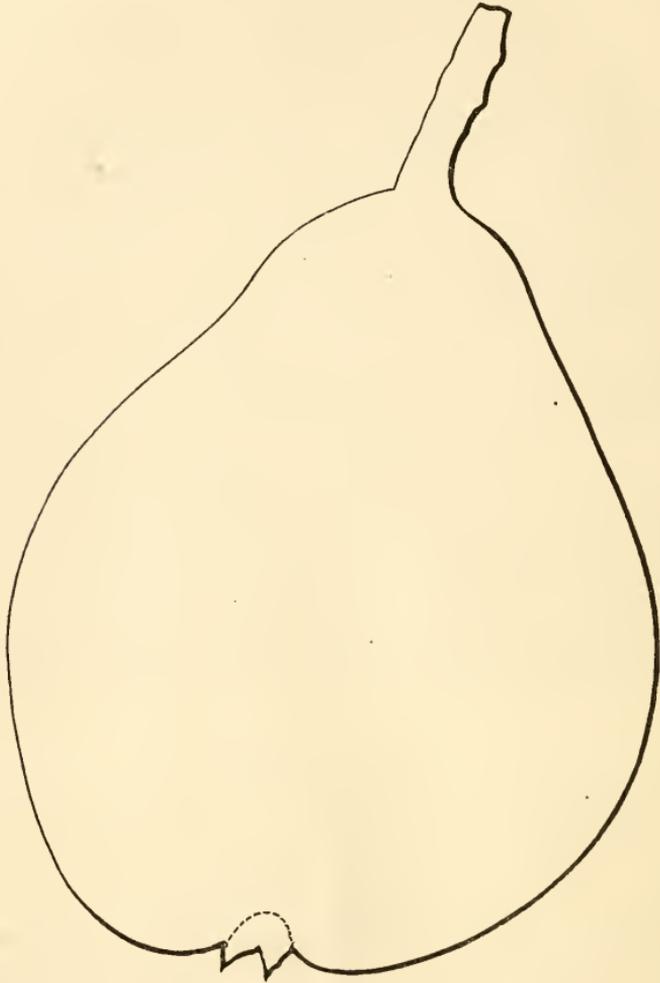
DESCRIPTIONS OF SELECT VARIETIES OF PEARS.

BY THE EDITOR.

THE pear has generally been considered one of our most certain fruits; in fact it is. Still the present season is an exception, and for the second time during a period of twenty years the crop has partially failed. The cold night of February last killed the buds of many kinds and greatly injured others. Very few new sorts have fruited this year; out of nearly fifty new varieties, large enough to produce a few pears, all have failed. Consequently we are unable to give descriptions until another year, when we hope to add several choice kinds to our extended collections of this fine fruit.

219. CLAPP'S FAVORITE.

This very fine pear (FIG. 23) was raised by Mr. N. Clapp of Dorchester, Mass., and was exhibited last year, we believe for the first time, before the Massachusetts Horticultural



23. CLAPP'S FAVORITE PEAR.

Society and the Pomological Society at Philadelphia, in whose transactions a full account of it is given by the committee on native fruits. This year it has been shown again, and by the kindness of Mr. Clapp we have been enabled to test its quality once more, and give a description and engraving of the fruit.

That this pear has fruited this year shows, that while it so nearly resembles the Bartlett in appearance, it is so hardy in its character as to resist the severe cold which so generally affected the Bartlett; and in quality it certainly is its superior. Its production only confirms the opinion we have before expressed in describing Mr. Dana's Seedlings, that we have only to persevere in raising seedlings to make our collection of native varieties unequalled by that of any other clime. What the supposed parent of Mr. Clapp's seedling is we have not learned, but the great resemblance of the Favorite to the Bartlett would lead us to select that. At any rate it is likely to prove a very valuable acquisition.

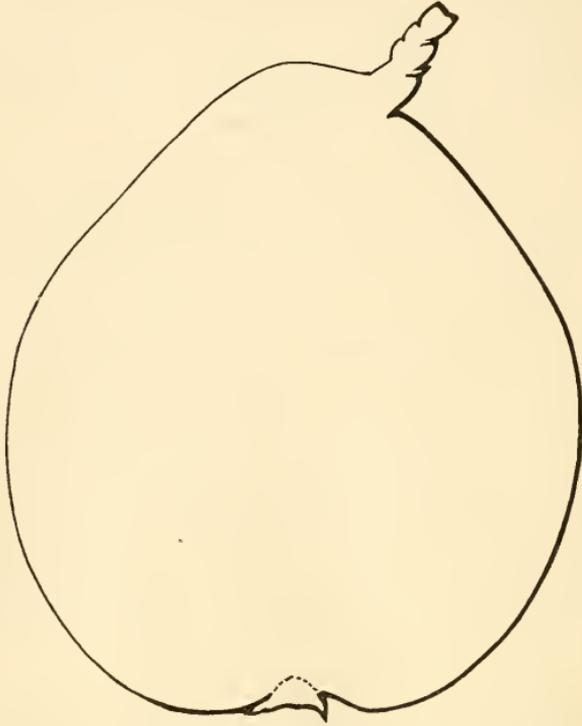
Size, large, about four inches long, and three in diameter: *Form*, obovate pyramidal, largest near the middle, rounding off towards the crown, and narrowing to the stem, with a slightly uneven surface, generally resembling the Bartlett: *Skin*, fair, smooth, yellowish green, becoming full yellow at maturity, marbled with dull red in the sun, and dotted with small russet specks; *Stem*, medium length, about half an inch long, stout, and obliquely inserted without any cavity on the rather obtuse end: *Eye*, medium size, closed, and but little sunk in a very shallow puckered basin; segments of the calyx projecting: *Flesh*, greenish white, rather fine, melting and juicy: *Flavor*, sprightly, refreshing, perfumed and excellent: *Core*, medium size: *Seeds*, medium size. Ripe in September.

220. WALKER'S SEEDLING, or Mt. Vernon.

This is another new seedling (FIG. 24) raised by the late Samuel Walker of Roxbury, Mass., and described in the Gardener's Monthly as the Mt. Vernon pear, but whether this name was authorized or not we do not know, as we observed that Messrs. Walker & Co., the successors of Mr. Walker, recently exhibited it before the Massachusetts Horticultural Society as "Walker's Seedling." We have tested the variety for two or three years, and though not so prepossessing in appearance as many others, has sterling qualities which must render it a favorite with pomologists. It is irregular in shape, and has a dull brownish russet skin, but it is full of a rich brisk vinous juice, with a peculiar and delicious aroma. Of

the growth and characteristics of the tree we have no knowledge, but its bearing this year is a proof of its entire hardiness.

Size, medium, about two and three quarters inches long and two and a half in diameter: *Form*, obovate, largest about the middle, rounding off to the crown, and narrowing to the stem, swollen on one side: *Skin*, smooth, dull green, nearly covered with thin russet, with a circle of dark russet

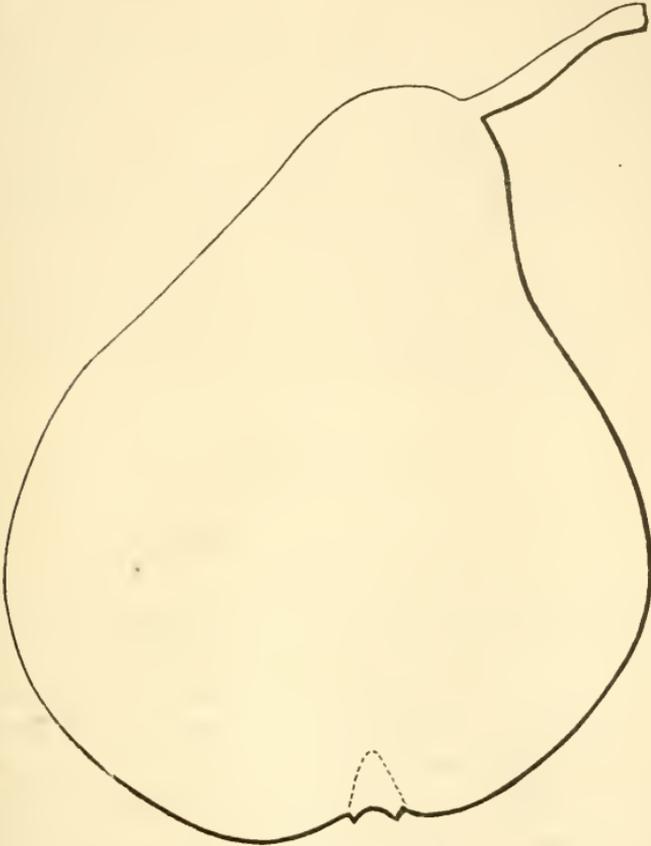


24 WALKER'S SEEDLING PEAR.

around the stem, and broadly shaded with bright red, slightly marbled in the sun: *Stem*, short, less than half an inch long, not very stout, wrinkled, and obliquely set in a very slight cavity formed by a projection on one side: *Eye*, medium size, open, and very slightly sunk in a very shallow smooth basin; segments of the calyx thick, connected, reflexed: *Flesh*, greenish white, little coarse, half melting, and very juicy: *Flavor*, sprightly, saccharine, and rich, with a peculiar aroma: *Core*, large, slightly gritty: *Seeds*, rather small, tapering suddenly to the point. Ripe in October and November.

221. DURANDEAU, or De Tongres.

Among the foreign pears of late introduction few that have fruited appear more promising than the Durandean, (FIG. 25.) With much of the general appearance of the Beurré Bosc, it certainly equals, if it does not excel, that fine old variety. Mr. Earle of Worcester has already given a very flattering account of it in our pages, (Vol. XXVI., p. 129.)



25. DURANDEAU OR DE TONGRES PEAR.

He calls it, as it truly is, a "noble and beautiful pear," deserving to be classed with the Doyenné du Comice, Beurré d'Anjou, and others of similar quality. The tree is rather a slender grower while young, but with age it becomes robust, and succeeds very well upon the quince. It is one of the few new pears which, accidentally, have not fruited in our collec-

tion, the trees upon which it was grafted having suffered in the cold winter of 1857; but our amateur friends who have fruited it, and kindly furnished us with handsome specimens, speak very highly of its qualities. We have no doubt it will be a popular variety.

Size, large, about three and a half inches long and nearly three in diameter: *Form*, pyramidal, large, and rounded at the crown, contracted below the middle, and tapering to the stem: *Skin*, little rough, with a slightly uneven surface, pale yellow, covered with a profuse tracing of russet, striped or marbled with red in the sun, and covered with large russet specks, becoming when mature of a rich gold russet: *Stem*, medium length, about one inch long, moderately stout, and obliquely inserted on the somewhat obtuse end on one side of a prominent lip: *Eye*, medium size, open, and but slightly depressed in a small shallow basin: segments of the calyx, short, rounded, stiff: *Flesh*, white, fine, melting and juicy: *Flavor*, vinous, brisk, and rich and delicious: *Core*, rather small: *Seeds*, small, dark. Ripe in October.

POMOLOGICAL GOSSIP.

INGRAM'S HARDY PROLIFIC MUSCAT GRAPE.—We have already noticed this new grape. It has recently been again exhibited before the Royal Horticultural Society, competing for a £5-prize for the best seedling grape of this year, and receiving the award as such; it also received a first-class certificate of merit. Mr. Standish, who has the entire stock and who has exhibited the fruit, states that he has fruited the Prolific Muscat both in pots and planted out, and can therefore speak with certainty to its great productiveness and hardiness. It produces hard, short-jointed wood, with thick robust foliage, a property which adds to its value. Most of the Muscats having tender foliage apt to become scorched under a bright sun. The bunches are somewhat long, tapering, and well shouldered. The berries set very freely, even under the disadvantage of a low damp atmosphere; the ber-

ries are medium sized, oval-shaped, of an intensely black color, and well covered with bloom, possessing a rich vinous flavor, with a slight dash of musky aroma; the variety has been pronounced by competent judges to be a most delicious as well as very useful grape. It was raised from a black seedling, impregnated with the Muscat of Alexandria.

THE SALWAY PEACH.—This new variety, which has attracted considerable attention among English cultivators, has just fruited in the garden of Mr. H. H. Hunnewell, of West Needham, and Mr. Harris, the gardener, exhibited very fine specimens at the annual show of the Massachusetts Horticultural Society last month. The specimens measured eleven inches in circumference, were very beautiful, and of excellent quality. They were grown in pots. By the kindness of Mr. Harris we received one of the specimens, which enabled us to test its quality, and we can recommend it as a large, showy and most excellent peach, particularly adapted to orchard-house culture, where very large fruits are desirable.

FINE ORCHARD-HOUSE PEARS.—Mr. Chamberlain, gardener with Gov. Lawrence at Newport, R. I., exhibited several very large specimens of Beurré Clairgeau, Duchess and other pears at the Fair of the Rhode Island Society for the encouragement of Agriculture and Horticulture, held in Providence, on the 11th of September. Mr. Chamberlain has been highly successful in the management of his trees, and he has promised us an account of his new mode of growing pears and other fruits in *baskets* in orchard-houses.

VERY FINE MUSCAT OF ALEXANDRIA GRAPES.—The most remarkable specimens of this grape we have ever seen recorded were exhibited before the Pennsylvania Horticultural Society, Aug. 20. They were from Mr. Matheson, gardener to F. C. Yarnell, and the bunch weighed *nine pounds and a quarter*. The berries were very large and uniform in size, and of excellent flavor. This bunch was only one out of nine on the same vine, the aggregate weight of which was upwards of *fifty pounds*. Mr. Matheson was awarded the special premium of five dollars for his superior grapes.

THE CYCLAMEN.

FEW plants present a more gay appearance in the early spring months than the Cyclamen. From November to May, they enliven the greenhouse with their singular-shaped and various-colored flowers, often in such masses as to eclipse many more stately and conspicuous objects. Yet with such decorative qualities they are but sparingly cultivated, and rarely more than a plant or two is to be seen in many collections, and these generally the well-known and common species *C. persicum*; the very brilliant crimson and parti-colored varieties, as well as the distinct sorts, *C. coum*, *africanum*, *Neapolitanum*, *Atkinsi*, &c., with their varieties, being almost unknown.

A magnificent display of all the known kinds, during the early months of the year, reminds us now, when they again require attention for another year's bloom, of the importance of bringing them to the notice of cultivators, for we do not know of any plant which more richly repays all the care and labor than these truly elegant objects. Easy of culture, requiring but little space, and flourishing in any ordinary greenhouse, they eminently possess those qualities which adapt them to the most limited collection. They are also among the few plants which flourish well in the parlor, where they bloom abundantly and for a long period.

The cyclamen, we have said, is of easy culture; but the particular habit of the plants should be understood. Natives of the south of Europe, where they deck the hillsides with a carpet of bloom, after the flowering is past, the summer droughts set in, and the leaves mostly dry up, leaving only the bulbs, which remain dormant, or with only a root action, till the return of the season of rains, when they immediately assume their neat verdure of glossy marbled leaves, succeeded by their abundant flowers, so numerous, our correspondent Mr. Cabot informs us, in the fields in Italy as to quite cover the entire surface, conspicuous for a great distance.

It has been the general practice, as noticed in the extract below, to let the plants dry off after the season of bloom is

over, and remain in the pots without watering till their period of growing again: that they will flower well, treated in this manner, there is no doubt, especially in the cool and moist climate of Great Britain; but under our hot sun and dry atmosphere the roots which are exposed on the surface are liable to injury, and frequent waterings do not seem to suit them. What they require is a constant supply of moisture, not in too large quantities, by which the vitality of the plants is kept up. Hence the best mode is to plant out the roots in a well-prepared bed of light soil, in a northerly aspect. Here they will require no water, and the occasional summer rains will not injure them; on the contrary, they throw out young leaves, and the bulbs continue to swell and have a plumpness which is never seen in plants treated on the drying-off plan. The last of August or in September the roots should be lifted carefully and potted, placing them in a frame where they can be sheltered from our heavy autumn rains. They will soon establish themselves in the pots, when they should be removed to the greenhouse for the winter.

This mode of treatment was first recommended by the late Mr. Wilmot, of Isleworth, near London, who was one of the most successful cultivators of the cyclamen. "By this mode of cultivation," he says, "a stock of this beautiful plant can easily be raised; and as time can be saved in the cultivation without any additional expense or trouble, I trust I shall, in a short time, see it growing generally with that luxuriance which I have often observed with pleasure in my own garden, where I have frequently counted from fifty to eighty fine, strong, expanded blossoms from a bulb two years old, growing in a four-inch pot."

We have generally adopted this system of culture, always with small bulbs, and have been successful in getting roots of twice the size that they could be grown by the drying-off plan, besides giving a much more abundant bloom. Seedlings planted out in the spring will most of them make fine blooming plants the following winter.

Care should be taken not to overpot the bulbs. A four-inch pot is large enough for moderate-sized plants, and a six-inch for the larger ones, which should be about two inches in diameter.

One word in regard to the varieties. *C. persicum* and its varieties are the most showy. We have under cultivation ten varieties, which may be described as follows:—

1. *C. PERSICUM*.—The ordinary form of the species, with white flowers; the segments long acute, blotched with crimson at the base, where they reflex.

2. *C. P. CARMINATUM*.—Flowers rosy-carmine, blotched at the base with crimson; the segments broad and obtuse.

3. *C. P. ROSEUM*.—Flowers large, deep marbled rose color, with deep rich crimson stain at the base; the segments broad and obtuse.

4. *C. P. ATROPURPUREUM*.—Flowers large, deep purple rose, deeply stained with rich dark crimson at the base; the segments broad and acutish.

5. *C. P. VARIEGATUM*.—Flowers white, spotted with crimson and shaded with blush, having a rich crimson basal stain, and broad obtuse segments.

6. *C. P. RUBRUM*.—Flowers deep purple rose, with a very rich crimson stain at the base; the segments long and acute, as in the type.

7. *C. P. MARGINATUM*.—Flowers delicate blush, paler below, stained with crimson at the base; the segments very broad and obtuse.

8. *C. P. PUNCTATUM*.—Flowers large, white, spotted with crimson, and blotched in the usual way at the base.

9. *C. P. ALBUM*.—Flowers pure white, without spot or stain.

10. *C. P. DELICATUM*.—Flowers large, white, bordered with pale rose around the base; the segments broad and obtuse.

The following descriptive account of the several species, and the treatment of the plants, is from Henderson's *Illustrated Bouquet*, and is more full and complete than anything before published:—

C. PERSICUM produces in the autumn months a low tuft of neat, ovate, heart-shaped leaves, crenate at the margins, dark green, and picturesquely dappled and zoned with silvery gray; as spring approaches, these are followed by a profusion of slender flower-scapes, six to nine inches in height, terminated by the nodding flowers, each consisting of a short tube, and

an elegant coronet of five white, oblong-lanceolate acute segments, an inch or more in length, reflexed almost close to their base so as to stand erect. The flowers are in general richly blotched with purple crimson at the base of the segments, just above where they reflex. The major part of the plants in this species, moreover, diffuse a rich and grateful odor, but, in consequence of many seminal varieties having been originated, the fragrant kinds are not always to be recognized before the flowering season.

The varieties of *C. persicum* bloom variously from December until May, and a successional bloom is obtained by starting the vigorous bulbs into growth a month or more earlier than the rest, and by retarding others in a cooler temperature in ventilated pits or houses during the mild autumn weather. By the latter end of April, as the fading leaves appear to indicate a cessation of growth, water should be gradually withheld until the following autumn. While at rest, the tubers remaining among the soil in the pots should be placed either in a cool shady part of a constantly-ventilated house, or in a pit, where they will be screened from all heavy rains, and no water should be allowed, but by occasional summer showers. The tubers will thus enjoy a few months' rest until August or September, when they may be removed; and the balls of soil having been cleared of worms, they should be repotted where required, or re-surfaced with fresh soil, and then slowly started into growth within a cool, well ventilated greenhouse or pit. At this stage, and until the root-growth is well established, they require water but once or twice each week. This species, in common with other greenhouse kinds, thrives well in good friable well-pulverized loam and leaf mould, in the proportions of three parts of the former to one of the latter. The tubers require to be planted with the crown of small incipient buds just exposed above the soil, and should not be placed so as to stand higher than the rim of the pot.

To obtain a succession of bloom, it is a very convenient plan to separate the plants into about three sets. It will be found that some will have a tendency to renew their growth, after resting, earlier than others; these should of course be encouraged to grow on first, and the others in succession.

When once they are so separated, the earlier blooming plants will usually be the first to have completed their growth, and be ready for the annual rest, and these would naturally be the first to be started the following season. Such a selection of plants is far better than promiscuous forcing, as the result desired is thus obtained with less artificial stimulus.

One of the principal precautions to ensure a free blooming habit in *Cyclamen persicum*, is to allow the tubers to become well established in the pots. Repeated annual potting is not requisite where the pots are at all commensurate with the strength of the tubers. The operation of shifting to larger pots should be restricted to once in two or three years, a surfacing of rich fresh soil being a sufficient intermediate renewal.

C. AFRICANUM, known also in various collections by its synonyms *macrophyllum*, *latifolium*, and *robustum*, is a large robust-growing species, requiring treatment similar to *C. persicum*. It has large dark green leaves, slightly zoned and dappled with yellowish gray, sometimes roundish-ovate in outline, crenated, sometimes more or less angulate. It has comparatively short flowers, with broad segments, and, as in *C. neapolitanum*, very conspicuously lunate-pentagonal at the wide-expanded mouth; they are of a pale rose or pink, more deeply rose colored at the base. It is a plant of very distinct character, having somewhat the style of *C. persicum*, though not so prolific of bloom. Its botanical affinity, however, is with the autumn-blooming *C. neapolitanum*.

The second section consists of more hardy species and varieties, which are equally interesting with those of the former group, but are mostly of a more diminutive character. To this group belong the kinds mentioned below.

C. COUM may be considered as the earliest flowering of the tribe, on account of its blooming first in spring. It forms a dwarf neat patch, barely covering the surface of the soil, in early autumn, with its small decumbent-stalked, round heart-shaped entire leaves, dark green and unspotted above, and reddish purple beneath. Above these leaves in early spring, on stalks two or three inches long, appear a profusion of short, bright purplish rose or reddish purple scentless blossoms,

richly blotched with violet crimson at the base. This species varies with light pink or flesh-colored flowers, the variety being equally profuse in bloom.

C. IBERICUM is a dwarf, compact, spring-flowering species, or variety, producing ovate-heart-shaped leaves, having a wide open sinus at the base, the margin nearly or quite entire, deep green above, with an irregularly heart-shaped zone or belt of pale grayish-green some distance within the margin, dull reddish purple beneath, with green veins. The flowers are numerous, variable in color: in some plants rich rosy crimson purple, in some pale rose color, and in others white, but always marked with a purple or crimson blotch at the base; the mouth is pentangular, the sides concave in consequence of the segments being curved outwards at each margin, at this point. The white-flowered variety, *C. ibericum album*, is an elegant little plant, the richly crimson-colored base of its white flowers forming a beautiful and lively contrast with the higher colored purple kinds.

C. ATKINSII, a cross between *persicum* and *coum*, is an improvement upon *C. ibericum album*, being larger flowered; and being also a most profuse blooming plant, it forms a very elegant and picturesque object, and is a valuable accompaniment to the higher-colored kinds. The leaves are rather large, ovate-obtuse, cordate at the base, with a deep sinus or partition there, the sides of which overlap each other; they are of a dark glossy green, livid or dull purple beneath, and marked above with an irregular zone of pallid or grayish-green within the margin. The flowers are intermediate in size and form between the two parents, the petals broadly obovate, nearly an inch long, blush-tinted white, marked with a deep crimson blotch at the base of each segment, the mouth of the tube being nearly circular, having indistinct angles. It is a spring bloomer.

The three last-named kinds, with their varieties, being perfectly hardy, admit of simpler treatment than that recommended for the tender sorts. They succeed equally well, however, in a similar compost of loam and leaf mould. In planting, the tubers should be covered with soil to the depth of half an inch, or more, and the pots may be plunged in an

open cradle or hooped bed, which can be outwardly protected with garden mats, &c., from excessive rain or frost in winter. In this position they may remain from the potting period in August or September, until midwinter or early spring; during this time they require to be cautiously watered, once or twice each week in warm weather in the early autumn being sufficient, or, if they are exposed to occasional warm showers, further waterings may be dispensed with, until they are removed to the forcing-house or conservatory for bloom. They form very attractive features in decorating the marginal spaces of greenhouses, drawing-room vases, portable flower baskets, and conservatory avenues during the midwinter and early spring months.

C. VERNUM in its true form, as figured long since by Sweet, has been aptly described as having the leaves of *persicum* and the flowers of *coum*. It seems very scarce. The tubers produce from the crown a short rugged stem or axis, from which the leaf-stalks and flower-stalks issue. The leaves are roundish-ovate, cordate but overlapping at the base, crenulate at the margin, purple beneath, and dark green on the upper surface marked with an irregular zone of a pale gray-green. The flowers are rosy red, "darker near the mouth where there is a white circle, inside striped with red," their segments short, ovate or oblong. The flowers are nearly the same as in *C. coum*, but the plant is more robust. Sweet's plant, owing doubtless to peculiarities of treatment, flowered in spring, but under modern cultivation this kind blooms from November onwards till January.

C. LITTORALE is a pretty dwarf hardy species, with small spherical tubers, and producing roundish-ovate cordate leaves, dark green along the basal part of the central ribs, forming a star-shaped figure, and spotted with dark green on a grayish-green ground at the margin, the same grayish-green color extending inwards between the principal veins; the under surface being purple. Its flowers, produced along with the leaves, are rather longer than in *C. coum*, bright lively rose color, streaked with deeper rose at the broadish scarcely angular throat, but not blotched. It is a very neat and desirable late spring-flowering species, and not common. It is most nearly related to *C. europæum*, but seems distinct.

C. REPANDUM, also known as *æstivum* and *hederæfolium*, is a late spring-flowering species. It has broad cordate angulately-toothed leaves, purple beneath, dark green above, and marked with a zone of greenish-gray. The flowers are bright red, with long narrow segments. This species is somewhat tender, and liable to perish in winter, if not protected from wet and extreme cold; so that its treatment must be more assimilated to that recommended for the species of the first section.

C. EUROPÆUM is a very desirable dwarf summer-flowering and highly fragrant species. The leaves are small, roundish heart-shaped, crenated or slightly toothed, dark green, and marked with an irregular grayish zone towards the margin, purple beneath. The flowers are of a pale rosy lilac, deeper at the broad open pentagonal mouth, the segments oblong acute, about an inch long. This being a rather slow-growing plant, it should not be often repotted or otherwise disturbed, but allowed to accumulate vigor to favor a free production of bloom.

C. NEAPOLITANUM, frequently cultivated as *hederæfolium*, is a pretty autumn-flowering species, and the most robust and hardy of all the kinds. It has large angular-lobed, ivy-like leaves, prettily variegated with a silvery-gray zone on the upper side, and having an irregular broad band of white and purple beneath; and bears, before the leaves appear, numerous large rosy-pink scentless blossoms; these blossoms are pentagonal, with lunate sides at the mouth. The variety of this species, *C. neapolitanum album*, is a valuable addition to autumnal-flowering hardy perennials, its beautiful snow-white blossoms being conspicuous in September and October.

The hardier group of *Cyclamens* is extremely well adapted for pot culture in frames. The plants may be grown in the same kind of soil as the more tender sorts, and may be treated in all respects similarly, except that they are more hardy and should have a greater degree of exposure to air. In fact, an airy pit or frame is the most suitable of all situations for them, for though probably hardy enough to grow in the open ground in sheltered situations, yet in the case at least of those which bloom early, the flowers would be exposed to the risk

of being destroyed by frosts; whilst if grown in protected pits, in which their pots should be plunged in some such porous material as coal ashes, they can be removed as required when in flower, and made available for decorative purposes. The summer and autumn flowering kinds are beautiful plants for select, sheltered, out-door beds or borders.

Cyclamens are freely raised from seeds, which should be sown before they become thoroughly ripe, as soon, indeed, as the pulp of the fruit becomes soft to the touch; by sowing thus early a whole season is gained.

THE CULTIVATION OF NATIVE FLOWERS.

BY MRS. ISAAC CLEMENT, MECHANICVILLE, N. Y.

38. *GLYCINE MONIACA*, Pea vine. A pretty slender vine in low woods, and waste ground, four to six feet high, bearing small racemes of delicate purple flowers, and smooth legumes of dark-colored seed; the leaves are a handsome light green. It makes a good appearance when trained to a pole with a little brush on, to hold it in place; will grow on dry ground. July to September.

39. *ORCHIS FIMBRIATA*, Purple-fringed Orchis. A beautiful water plant, found here in ponds and slow running streams. I have never tried to cultivate it in dry soil, and do not think it would do well. There are so many handsome water plants that any one that loves wild flowers should have a place prepared for them if water is convenient, as they do not require running water. Leaves long and dark colored; flowers, light purple, in a cylindrical spike, five or six inches in length. August to September.

30. *SOLIDAGO LANCEOLATA*, Grass-leaved Golden-rod. If being plenty detracts from the beauty of a plant, then the Solidagoes would have to be ruled out, as they are by every fence and spare place that they can get a foothold, but with all their commonness some of them are worthy of cultivation. This variety I think the handsomest we have here, (all are perennials,) from two to three feet high, branching, bearing

corymbs of yellow flowers, with handsome long narrow leaves, and makes a good plant all summer; easily removed, does well in any situation. August to October.

31. *SOLIDAGO GIGANTEA*, Giant Golden-rod. A tall showy variety, looks well in the back ground, where it can only show its giant head of yellow flowers; very plenty here on dry ground. August to October.

32. *EUPATORIUM FISTULOSUM*, Trumpet weed. This giant among the Eupatoriums is found here on low ground, from three to six feet in height according to the soil; the leaves are in whorls, with large corymbs of purple flowers; easily removed; looks well in the border. August to October.

33. *EUPATORIUM AGERATOIDES*, Nettle-leaved Eupatorium. This beautiful flower is the prettiest of the species, and not very plenty here; I have found it on dry ground and wet, in shade and sunshine. It is not very particular where you set it. I think the old root does not live long, but the seed drops and keeps up a succession of flowering plants; flowers, pure white, in a compound corymb; a great bloomer, and could not be distinguished from the white *Ageratum*. August to October.

34. *NUPHAR ADVENA*, Yellow Pond Lily. Another water plant very plenty in some places, found in sluggish water; with large dark green leaves; flowers, globular in form, composed of six petals, erect, on a thick rigid stalk; root very creeping. July to September.

FLORICULTURAL NOTICES.

FERNS.—We are glad to notice the growing interest in the cultivation of these beautiful objects. At the late show of the Massachusetts Horticultural Society many fine specimens were exhibited, which were the admiration of all visitors. Among the many kinds were the beautiful *Pteris tricolor* and *argyrea*, *Gonophlebium appendiculatum*, *Lycopodium lepidophyllum*, *Gymnogramma tartarica*, &c. &c. At the exhibition of the Brooklyn Horticultural Society many handsome

ferns were contributed; and at the Show of the Rhode Island Society for the Encouragement of Domestic Industry, Mr. Hogg of Bristol had several new and beautiful kinds. We hope to chronicle further exhibitions of these ornamental objects another year, and trust their cultivation may be widely extended.

NEW GLADIOLI.—There is no diminution in the taste for this showy garden flower now brought to such perfection. The exhibitions the past few weeks have been exceedingly fine, and embraced all the new sorts, among which we noticed *Mad. Vilmorin*, a rich pinkish rose kind, a superb spike and very large flower; *Prince Imperial*, blush white, with crimson feather, very fine; *Pluton*, deep crimson, with white feather; *Marie Dumortier*, white, with rose and purple feather; *Mad. Rabourdin*, rose, flamed with carmine, *La Poussin*, *Comte de Morny*, *Ophir*, *Linné*, and others, were superior to last year, probably from the bulbs being stronger and the dryer season.

In England there is the same love for this showy flower, and at the late exhibition of the Royal Horticultural Society, Sept. 10, several new English seedlings were shown, but the season has not been favorable there, and they were much poorer than last year. Mr. Standish had the following new kinds, among many others less beautiful:—

Miss Ingram, a new sort, with yellow throat and crimson feather; *Lady Caroline Legge*, clear white with crimson lip, very large; *Miss Graham*, pure white, with bright crimson feather, very striking; *Bridesmaid*, large, pure white; *Miss Porter*, white, with singular dark lip; *Goldfinder*, lemon, and bright yellow; *Juliet*, lemon with pink feather; *Lady Emelie Seymour*, salmon pink, a fine bold flower; *Mrs. Menzies*, pink, beautifully marked with crimson; *Mrs. Hole*, creamy blush, carnation striped, clear and beautiful; *Col. Hood*, scarlet, feathered with crimson; *J. W. Lane*, scarlet with white stripes, yellow throat and crimson feather, a fine bold flower; *Mr. Duffield*, reddish violet with crimson feather; *Donald Beaton*, pink, striped and blotched with maroon on all the petals; *Mr. Rucker*, scarlet, with white throat and crimson feather—a very large flower; *Mowbray Moore*, fine

scarlet, shaded white throat, and deep crimson feather; Prime Minister, scarlet with violet throat; and Towardi, deep salmon, a bold flower.

NEW SEDUM.—Among the new plants lately exhibited in London was a pretty little trailing Sedum from Japan, by Messrs. Henderson. It was one of Dr. Siebold's introductions, and named by him *S. carneum variegatum*; it is of branching habit, with reddish terete fleshy stems, and linear leaves, in whorls of three, broadly margined with cream color; the flowers, which were not, however, produced on the plants exhibited, are yellow; it will probably be a neat plant for rock work, or for small hanging baskets, and received commendation on those grounds.

STOKESIA CYANEA is a very pretty hardy or half hardy herbaceous plant, with large pale blue flowers, three or four inches in diameter. It is noticed in a previous volume, and flowers have been exhibited by Barnes & Washburn before the Massachusetts Horticultural Society the present season.

DOUBLE FUCHSIAS.—The double fuchsias have been greatly improved both in habit, vigor of the plant, and size of the flowers. Some of the new French and Belgian kinds are very remarkable, especially Solferino, which is nearly as large as a moderate-sized rose; truly astonishing in its dimensions. A new English variety, called Mammoth, has also monstrous flowers. Other new and fine French sorts are Duchess de Brabant, Victor des Pruines, Colibri, and Madame Cornelissen, which is a double white corollæd variety, of vigorous habit, free blooming, and exceedingly fine. They are all valuable additions to this handsome tribe of summer blooming greenhouse plants.

592. **STREPTOCARPUS SAUNDERSII** *Hook.* MR. SAUNDERS'S
STREPTOCARPUS. (Cyrtondaceæ.) Natal.

A stove plant; growing a foot high; with grayish blue flowers; appearing in spring; increased by cuttings; grown in light leafy soil. *Bot. Mag.*, 1861, pl. 5251.

A very fine species of great beauty, giving a succession of flowers for a long time. Its greatest charm over other species of which there are but four, "is in the size, the color of the under side of the foliage, rich purple red, less deep, indeed, as the leaves advance in age, and the delicate grayish blue

color of the copious flowers, with two purple blotches in the faux; cultivated in a good-sized pot we can hardly conceive a more interesting stove plant." It will undoubtedly flourish in the greenhouse in summer. It is a native of Natal, from whence seeds were received at Kew. The leaves are very large, solitary and radical, a foot long and eight inches broad, yellowish green and velvety above and purple rose color beneath. The flower stems are a foot long, erect, and the flowers are pendulous. (*Bot. Mag.*, June.)

593. DIMORPHOTHECA GRAMINIFOLIA *De Cand.* GRASSY-LEAVED DIMORPHOTHECA. (Compositæ.) Cape of Good Hope.

A greenhouse plant; growing a foot high; with white flowers; appearing in spring; increased by cuttings; grown in light rich soil. *Bot. Mag.*, 1861, pl. 5252.

An old plant long ago introduced and lost and reintroduced to the Kew Garden. It has an aster-like appearance, with white flowers two inches in diameter, with a purple centre, and the under side of the petals of a light brown. The habit is loose and spreading, with a grassy foliage. As a summer-blooming plant in the open border it may prove an interesting acquisition. (*Bot. Mag.*, June.)

594. STENOGASTER CONCINNA *Hook.* NEAT STENOGASTER. (Cyrtondaceæ.) India.

A greenhouse plant; growing 2 inches high; with pale lilac flowers; appearing in spring; increased by cuttings; grown in peat, leaf mould and sand. *Bot. Mag.*, 1861, pl. 5253.

A minute, delicate tufted plant; growing only an inch or two high, with small gloxinia-like flowers, and delicate foliage, the footstalks and veins of which are of a deep vinous red. "The deep green close habit, bright stems, petioles and veins, and abundance of pretty flowers, render it an attractive plant when well cultivated. (*Bot. Mag.*, June.)

595. BEGONIA PHYLLOMANIACA *Mart.* PROLIFEROUS-STEMMED BEGONIA. (Begoniaceæ.) Guatemala.

A stove plant; growing 2 feet high; with pink flowers; appearing in summer; increased by cuttings; grown in leaf mould, loam and sand. *Bot. Mag.*, 1861, pl. 5254.

A rather more curious than beautiful species, having dentated deep green leaves, and pendulous clusters of pink flowers. But the stems are squarrose and proliferous, so to say,

with minute leaves, single or in clusters, which are capable of forming new plants. These are produced on the stem, branches and petioles, and on being detached and placed in moist ground produce roots and plants. Hence the specific name—the plant being possessed by *phyllomania*. (*Bot. Mag.*, June.)

596. *CALADIUM BICOLOR*, VAR. *CHANTINI*. CHANTIN'S TWO-COLORED CALADIUM. (Aroideæ.) Para.

A stove plant; growing 2 feet high; with crimson and green leaves; increased by offsets; grown in peat, leaf mould and sand. *Bot. Mag.*, 1861, pl. 5255.

This is the beautiful *Caladium Chantini*, which has been produced so fine at our principal exhibitions. It is, indeed, a very remarkable kind, its brilliant red marking and whitish spots on a rich green ground, contrasting conspicuously with the deep green foliage of other plants. It proves to be a variety of the old *C. bicolor*, and it deserves to be introduced into every collection of plants. It is easily grown in the greenhouse in summer, starting it in a warm house or hotbed in March and keeping the roots quite dry in winter. (*Bot. Mag.*, July.)

597. *BEGONIA GLANDULOSA* *De Cand.* GLANDULAR-LEAVED BEGONIA. (Begoniaceæ.) Costa Rica.

A stove plant; growing 1 foot high; with greenish flowers; appearing in winter; increased by cuttings; grown in light rich soil. *Bot. Mag.*, 1861, pl. 5226.

A rather pretty species of this extended tribe, with a stout rhizome and almost rotundate leaves, the petioles of which are six inches long and reddish. The flower stem is slender, red, and loaded with small greenish white flowers. It appears allied to *B. manicata*. (*Bot. Mag.*, July.)

598. *LINDENIA RIVALIS* *Benth.* RIVERSIDE LINDENIA. (Rubiaceæ.) Southern Mexico.

A stove plant; growing 3 feet high; with white flowers; appearing in spring; increased by cuttings; grown in leaf mould, loam and sand. *Bot. Mag.*, 1861, pl. 5258.

A handsome evergreen shrub, with clustered leaves and terminal corymbs of white flowers two inches or more in diameter, with a tube nearly three inches long. The habit is good, the foliage small and neat, and the general aspect of the plant ornamental. It was collected by Mr. Linden, whose

acquisitions have so highly enriched our collections. (*Bot. Mag.*, July.)

599. PENTSTEMON SPECTABILIS *Thurber*. BEAUTIFUL PENTSTEMON. (Schrophularinæ.) California.

A half hardy plant; growing three feet high; with bluish violet flowers; appearing in summer; increased by seeds; grown in good garden soil. *Bot. Mag.*, 1861, pl. 5260.

This is one of our California species, described by Dr. Torrey as one of the showiest known. It was discovered by Mr. William A. Wallace, who sent it to Dr. Torrey. It has also been found in New Mexico, by Whipple's expedition. It is probably only half hardy, and the plants should be wintered in a frame. It is a very fine plant. (*Bot. Mag.*, July.)

General Notices.

A FEW HERBACEOUS PLANTS.—The shortness of time during which border flowers last in bloom is no doubt one cause why they are not so much grown, and the reason verbenas and similar plants have taken their place. I have, however, managed to get them to bloom with me quite up to November, and as the sorts I employ are really valuable both for effect and for cutting, a hint on the plan I adopt may not be unacceptable to your readers.

The plants I take are phloxes, delphiniums, campanulas, lysimachias, asters, *Lychnis Bungeana*, &c.—the three former principally. The border for these should be deep and well manured in the spring, for much will depend on this. My borders form several large groups in the centre of a lawn, surrounded by other beds filled with geraniums, &c., and are interspersed with dwarf shrubs. About the middle of June—sometimes before—we cut back two-thirds of all our phloxes, &c., to within six inches of the ground. The beds are now kept well watered to encourage the plants cut back to break afresh, which soon takes place. The spaces between them are filled with gladiolus, salvias and pentstemons, to produce a show of bloom in the interim, when they are removed, if necessary, to make room for the above to flower, which are now showing bloom, and will continue until late in the autumn; whereas the same plants not cut down are now dying, and are being cut away. If the phloxes throw up more shoots than will grow strong and produce good heads of bloom, I thin them to three or four on each plant, and the same by others. Where herbaceous plants are prized, this plan will enable the above and probably several other kinds to be seen in bloom as long as the season will permit them; they form good masses of bloom in the centre of a lawn, which we could not fill with common bedding plants, and are also very useful for cutting.—(*Florist*.)

A FRENCH BOUQUET.—I shall try to give an idea of a bouquet by describing that of Signor Beda. The flowers of it formed two ranges or tiers, composed of crowns, artistically variegated. Verbenas of different colors, commencing with bright red, and finishing with the most delicate rose, formed concentric circles, which surrounded beautiful corymbs of yellow lantanas in the centre and roses outside; then, white umbels of *Clypeola maritima*, a plant found at the sea-shore, and which is used in forming the base of the Italian bouquets. A garland of the green leaves of rose-scented geraniums bordered this part of the structure, like the rim of the vase of a little fountain, and from which were suspended by the long peduncles the buds and half-opened flowers of fuchsias. The second, or under part of the structure, wider than the other, presented a beautiful blue and white mosaic work, composed of delphiniums and *Clypeola maritima*. This fine assemblage was surrounded by a large crown of heliotropes, and connected with zones of rose and violet-colored balsams, alternating with stevia and motherwort. At last a girdle of red gomphrenas, a diadem of nasturtiums, an aureole set off with mimosa, and the hanging flowers of *Abutilon striatum*, completed the whole structure, from which our florists might have derived inspiration. Already beautiful performances have been produced in this way since the introduction of large bouquets. Bouquets are now a considerable article of commerce throughout Europe,—a tax which is paid without constraint, and the receipt of which is a smile.—(*Gardener's Weekly Mag.*)

ON THE CULTURE OF *PLEROMA ELEGANS*.—*Pleroma elegans* has great capabilities as an exhibition plant, and yet how seldom is it that we see fine-grown specimens well bloomed! It is true that some growers are very successful with it, although these are few in number. Having been for years a great favorite with me, I have directed much attention to its cultivation, and the following is an outline of my practice:—

Supposing you have obtained nice healthy plants, examine the condition of the roots, and if they require shifting, be careful not to afford too liberal room at first, and let the pots be well drained. The compost I find most beneficial is equal portions of fibrous loam and turfy peat, with enough silver sand to render the soil open and porous. After potting, tie the shoots down to the sticks as low as they can be brought, so as to form a nice specimen. A free supply of water must be allowed during the growing season. As the plants make progress, it is necessary to stop in, from time to time, such slender shoots as push too long, so as to secure short-jointed wood. None of the shoots should be stopped after the month of July, however.

By the following February the plants may have a shift into a size larger, and as soon as they have made the second shoot, pinch off the top ones, and tie to fresh sticks. Throughout the summer and autumn following, they will not require any further stopping, but should be allowed to grow on, being carefully attended to with water. During the following June, the plants may be expected to bloom, although this is not always the case, and indeed we may not be certain of their flowering, until another season, when the abundance of their beautiful blossoms will be an ample recom-

pense for the delay. When the bloom is over, they should again be repotted into pots a few sizes larger, after which they may be allowed a shift once in two years only, or every other season, although if larger specimens be required, it should be done annually, and a very little guano diluted with a quantity of water may be given occasionally, which will be found beneficial to the plants. Under this treatment the *pleroma* will be found to flourish in great perfection, bearing an abundance of its rich purple blossoms, and covered with deep glossy green foliage. Whilst in flower it will continue to blossom for a much longer period if shaded from the noon-day sun, besides which, this tends to preserve their color in full beauty.

Pleroma elegans is a native of the Organ Mountains, where it was discovered a few years back by Mr. Lobb, the persevering and successful collector of the Messrs. Veitch, of the Exeter and Chelsea nurseries, a name which has become justly noted for their many fine introductions.— (*Gard. Weekly.*)

HINTS ON THE MANAGEMENT OF EXOTIC FERNS.—The following brief remarks on the management of this beautiful class of plants, may not perhaps be unacceptable to those of the readers of the *Gardener's Weekly Magazine*, who may be desirous of commencing their culture, or those who have already a collection, but feel a difficulty in the proper management of it.

In treating of their cultivation, so as to render it as intelligible as possible, I intend dividing the subject in the following manner:—Propagation, Temperature, Soil, Water, and Insects.

First of all we will consider propagation, which can be effected in different ways, first by dividing the plants, which operation is best performed in March or April; but it is an operation that requires some care, although in some cases, where the species have a creeping caudex, it is comparatively easy, simply cutting them to pieces with a portion of the root attached and some fronds. With other species that have an erect caudex, it is a task of far more difficulty and requiring great care; the crown must be carefully cut through with a sharp knife, taking care that a part of the roots and fronds are attached to each piece. After it is cut through, pull it to pieces with the hand, and pot them in rather finer soil than that recommended for long plants. But the most natural method of propagation is by seed, which is sown in pots, three parts filled with drainage, and the other part with finely-sifted peat and silver sand. The soil should be watered previous to sowing the seed; after sowing, the pot should be covered with a bell glass, or a flat piece of glass, it signifies not which, and kept perfectly close till the seed begins to vegetate, when a little air should be admitted, to prevent the plants from becoming drawn or weakly. As soon as they are large enough to handle, they should be carefully potted in small pots, taking care to place them in a shady part of the stove till they get established.

The next important point of consideration is temperature: it has been found that a temperature ranging from seventy to eighty degrees is the

most suitable for the summer, or even by sun-heat to eighty-five or ninety degrees, provided they are supplied with sufficient moisture, and shaded from the direct rays of the sun. As regards the winter temperature, from fifty to sixty degrees is sufficiently high enough to keep any of the species in good health; for it should be remembered, that ferns, like other stove plants, require their season of rest, which can be only effected by a low winter temperature, accompanied with a comparative dryness, when they are kept in a high temperature, with a proportionate amount of moisture during the dark winter months; the growth they make is so weak and delicate, that the least sun or air disfigures them.

As regards soil, peat, with a little yellow turfy loam and leaf mould, with some silver sand, suits the strong-growing kind; while for gymnogrammas cheilanthus and other delicate species, a finer soil, consisting of peat and silver sand, is more desirable. In selecting peat for ferns, great care should be taken to choose rather spongy and fibry, like what is used to pot orchids—in taking care to reject the close, dark-colored, which at once becomes a mass of mud after it is watered. The best time for potting the exotic species of ferns is February and March—giving the large plants one shift every year, whilst the young growing plants must have two or three as required.

In potting the large plants, shake off most of the old soil, and cut away some of the roots, and put the plant in a nice clean pot, the same size. This plan can be pursued for five or six years, when it is best to replace them by younger plants. Previous to potting, the soil should get nearly dry at the roots, in order that it may be more easily shaken away.

In respect to watering, it is a common notion that it can be indiscriminately and unsparingly employed, and by adopting that notion causes the soil to be thoroughly soddened, so that the roots are completely choked up and unable to perform their functions in a proper manner—hence the supposed difficulty of cultivating the *Gymnogramma notochlænas* and other delicate species successfully. Care should be taken that fronds never flag for want of water, but as soon as the soil looks and feels dry, give it a good soaking directly; always make it a rule to give enough at once—not a little every day. Ferns are greatly benefited by a syringing twice a day during bright, sunny weather, and also by keeping the floors well moist; they also require shading during bright sunshine, otherwise they are liable to get scorched, and consequently disfigured. Insects:—The two greatest pests to fern-growers are scale and thrip. The scales generally appear on the fronds, and can only be removed by washing with a sponge and water; a very small painter's brush is also of great service,—if the fronds that are infested are rather old, they had better be taken off altogether. Be careful never to remove the whole of the fronds, as it would very likely result in the death of the plant, unless it was a very vigorous grower. Mealy bug must be removed in a similar manner. The most effectual way of destroying thrip and green-fly is by smoking the house with tobacco. It is best to perform the operation moderately, and repeat it for the two or three evenings following, as an excessive amount of smoke is liable to injure the

plants; while a moderate quantity, repeated two or three times, will effect the same object.—(*Floricultural Cabinet.*)

A PLEA FOR SMALL ORCHARD HOUSES.—It is all very well for Mr. Rivers and Mr. Pearson to talk about their large houses, one hundred feet long and twenty-four feet wide. They seem to forget the original idea, which was to give the poor garden amateur a chance of cultivating peaches and nectarines in gardens where walls did not exist. I at once seized upon it, and owe a deep debt of gratitude to my small span-roofed orchard house, fourteen feet wide, nine feet high in the centre, and five feet high at the sides. This kind of house is so much more easily put together than the large structures mentioned in your columns, that I fully believe any ingenious man after buying his rafters at the steam-sawing mills may build a house forty feet long for £20 (\$100); but then he must be his own carpenter, glazier, and painter, or nearly so. As to Mr. Pearson's caution about frost doing mischief in small houses, once within the last seven years I was very near losing my crop, as an April frost was unusually severe; but one pan of charcoal, which was lighted at 10, P. M., saved all but some apricots, which stood near the door at the end facing north-east. I admire the large houses lately built very much, for I can see that a new phase of orchard house culture is fast approaching, and that umbrageous trees of peaches and apricots will in the course of a few years be grown under glass. I observe that Mr. Pearson gives lean-to houses a slight prog with his lance. When the use of lean-to houses is understood by the cultivator, they are most invaluable structures, for the cultivation of very early grapes in pots or otherwise, for very early peaches and some other crops, no form of buildings can compete with them. For orchard houses, unless for those who are limited in their wishes or their purses, they are not so "nice," as wife says, as span-roofed houses. Good and fine fruit may however be grown in them; the finest peaches I ever saw grown on trees in pots were grown, I think, in 1854, at Black Rock, near Dublin, the seat of Thomas Bewley, Esq., and they were grown in two lean-to "glass-roofed sheds," their sides and fronts and backs, half-inch boards, covered with asphalte felt. Mr. B. has lately, I believe, built an orchard house sixty feet wide, but I question if he has grown better peaches than he grew in the very humble structures he first built. I prefer span-roofs for orchard houses, but I do not despise the humble lean-to. Most of us remember the advent of the thin pamphlet called the "Orchard House," early in 1852, the proceeds of which were dedicated by Mr. Rivers to the repairs of his parish church,—a good beginning, and which has gone through nine editions, "enlarged and improved" —a success unprecedented, I believe, in garden literature. The idea was seized eagerly by some, and, as usual with new ideas, was opposed by many. Failures, of course, occurred, but the system annually makes steady progress, and must do so, because everything connected with it is the result of sound common-sense calculation. With Mr. Rivers it has never failed, and from a recent view of his trees, many of which have been under pot culture ever since 1860, I can plainly see that it cannot fail, for such

vigorous health and productiveness I never before saw in peach, nectarine, and apricot trees. One more plea for small houses: the trees in them are near to the glass, and their fruit ripens from a week to ten days earlier than in large houses.—(*Gard. Chron.*)

GERANIUMS.—The following deserves every attention:—Looking to the general management of large and small gardens, the geraniums which have passed their flowering should be cut in very much, leaving the branches long enough to push out two or three shoots. Place them where they will receive all the rain, and let them have water in dry weather. Some people turn them out of the pots at the same time, and trim their roots so that they may go into pots of the same size, with fresh soil round them; but one operation is quite enough at a time; we want all the strength of the root to push the new shoots where the growing parts are all cut off, and the re-potting should not be done until they have begun to grow again. All the pieces taken off should be made into proper cuttings to grow, that is, the bottoms should be cut square just under a joint, and if a cutting is three joints long, it is enough, one to go into the ground and two above, so that some of the branches cut off will make two or more cuttings. There is a joint, or a growing eye or bud—other names for the same thing—at every leaf, so that there is no difficulty in seeing where a joint is. These cuttings may be stuck in the ground in a shady border, and be covered with a hand-glass. If you have no shady border, shade the glass; take care that the soil is kept moist, and in three weeks, or thereabouts, they will be rooted. We mention the treatment of the cutting because, if you have none, it is just the time to beg them when people are cutting in their plants, and can rarely appropriate them all, unless they are in the trade, or have some means of selling them. The scarlet geranium ought not to be cut in until the end of the season, for they continue to grow and bloom to the last. The plants that are turned out of the greenhouse into the open air want frequent examination, for in the midst of a rainy season they may want watering; a bushy plant will prevent any rain from entering the pot, so that many would perish if left to themselves; and we may easily deceive ourselves into fancied security, on the score of watering, when the rain is for days together falling in excess. It may seem curious, but we have seen a lady carrying a watering pot to her pet plants with an umbrella over her head, and not without reason.—(*Gard. Weekly Mag.*)

WINDOW GARDENING.—The beginner is strongly advised to adopt a few good old-fashioned plants—well known and approved shrubs and flowers, and he is reminded that when these are flourishing it will be time enough to seek after new subjects; for “a prudent gardener, so far from despising old plants, acknowledges that it is only by their known good qualities that they have held their own so long against all new comers.” Seed pots, and cutting pots too, should be sunk in moist sand, being packed in it up to their rims. This saves watering with all its attendant ills. Cuttings may be of two kinds; woody pieces, which strike root, though slowly, even

without heat, and almost without care; and young green shoots, which must be kept moist and warm. The former may be treated by an American method, which is to lay them amongst slightly damped moss, or to drop them lightly into a wide-mouthed bottle having a piece of damp sponge at bottom, and covered with muslin over the top; in either case a callus is soon formed, and the cuttings then root readily as soon as planted. With the latter, which require a totally different treatment, the grand secret is never to let them flag. For verbenas, calceolarias, pansies, heliotropes, and chrysanthemums, shallow pans are suitable; indeed common saucers answer perfectly. They are to be planted into silver sand an inch deep or less, and water enough is to be poured in to make a thin sheet of it above the sand; the lower leaves are to be cut off, and the stalks of the little inch-long tops of the young shoot well stuck down into the sand. They are better for some sort of shade and heat, if it be only the warmth of a chimney-piece; or they may be put over a basin of hot water refilled twice a day, with a glass for a shade, or with a rolled-up cover of tissue paper, in the absence of any proper propagating case. Before the water in which they are grown has dried up they will be almost all of them beautiful little rooted plants, ready to be put into pots full of light good soil. Nothing helps to keep old or established plants in health more than washing; and throughout the summer season this can hardly be done too often. To prolong the blooming time every fading flower should be instantly cut off. To keep azalea flowers from falling, a single drop of strong gum-water is to be dropped underneath the flower where it sinks into the calyx. "German Ivy," called *Ipomæa hederæfolia*, but by which we suspect *Senecio mikanioides*, sometimes called *Delairea odorata*, and *Breonia palmata*, is meant, is strongly recommended for the purpose of forming a leafy screen in a plant case.—(*Gard. Chron.*)

MANURING CONIFERS.—I was struck by the caution given to avoid manuring conifers, as I can well remember seeing outside of Holt, in Norfolk, Cromerwards, two plantations of spruce and larch, one on each side the road, well fenced in, and with boards painted opposite each other, with words, as near as I recollect, as follows:—"These are planted in well-manured ground," and date. The other had on it—"These were planted in unmanured ground," date the same as on the other board. The manured trees were at least twice as high, and had a far more robust and healthy appearance than those unmanured. It is more than twenty years ago, and the boards may yet exist. I may also mention that a few years since I planted three *Deodars*, and the most sickly one, which I hardly expected to get up, I placed immediately over the spot where I had recently buried my splendid, old favorite setter. At first it made very slow progress; but for the last two or three years, when it may be supposed the roots had reached the dead carcass, the growth has become most vigorous, the color of the foliage peculiarly beautiful, and its branches far more stout than the other two; which, however, are very handsome. Hence I infer that manuring many of the Conifers may be safely and advantageously practiced. Another correspond-

ent says,—In September, some eight or nine years ago, I had nearly the whole of my stock of coniferous plants removed and heavily manured with half-rotten horse and cow dung. At the end of the same week the question was asked through your paper, whether or not the application of manure would injure an *Araucaria*. The reply was,—“Yes, it is poison to the whole race.” I thought, if that is correct, I have certainly committed a serious blunder, but I patiently waited and watched the result. Nothing could be more satisfactory than the growth and appearance of the plants the following season. Since then I have invariably applied manure whenever I have removed plants of this kind in my own nursery, and always with the same satisfactory results. Therefore I have always recommended the application of manure whenever necessary, or an opportunity occurred for using it. As an illustration of what I have stated, I beg to say that about twelve months ago I sold a handsome specimen of *Picea Nordmanniana* to a lady in this neighborhood, who always superintends and directs the transplantation of trees, &c., herself. A compost of manure and soil was prepared for this plant, including three barrow loads of the former. Nothing can exceed the healthful appearance of this tree just now; it has made sixteen inches of leader this season.—(*Gard. Chron.*)

CULTURE OF VINCA ROSEA.—In all British possessions, as well as in Britain, it is called the Madagascar periwinkle or *Vinca rosea*. It is a stove plant with us, but if there was such a demand for it in Covent Garden as in all the continental cities, our people could do it in hotpits, such as for succession pines. In every other respect it requires exactly the very same kind of treatment as they give to the best show pelargoniums. It comes from cuttings quite as easily as the Crystal Palace scarlet geranium; and the cuttings of last February will be in the Paris flower-market ere now and on to the end of September; and it is worse than praying through the nose to go to the extravagance of having it from seed. The best thing that you could do with your seedlings, and the only thing that we would think of if they were sent to us, would be to throw the pot, seedlings and all, right over the garden fence as far as we could pitch it. You may spend ten years over them, and then not get a bloom worth looking at. We never received a package of foreign seeds from non-botanicals without a large share of the *la pervinca*, or *pervenche*, as the case might be. We have cast away as useless, as much seeds of *Vinca rosea* as would plant the county of Middlesex at a foot apart each way; and the only real useful advice we can offer on it to all our British readers is, to cast it off as perfectly useless to them. One nicely rooted plant, by the end of March, can be bought here for twelve pence, and by giving it bottom heat in a frame, and three shifts before the middle of July, one could have a plant of it of double the size it is generally seen in Paris. All our great country gardeners grow lots and lots of it to be ready for the conservatories by the time the London season is over, and it will stand in the drawing-room, or up each side of the grand staircase, on pedestals along the corridor, as well, and better, than most pelargoniums. When it has done blooming it is allowed to get as dry as a geranium. In that state it is cut close, or half or three parts

close before winter, according to the stock of cuttings required in February. The "stools" or these cut-down-plants are kept half dry in the stove during winter, shaken out of the mould in the spring, the roots cut back, and after being put in small pots they are plunged in bottom heat, and on with them swimmingly till they show bloom, then show them off.—(*Coll. Gard.*)

DESTROYING THE MEALY BUG ON GARDENIA FLORIDA.—I recently succeeded in cleansing a *Gardenia florida* from this pest. It is a large plant, and has often been cleaned in the old way, by a sponge, with a little soft soap and water; but it would sometimes have its shoots and leaves disfigured in cleaning. I had a cucumber bed made up, and as it was becoming warm, and a two-light box was placed upon it, an idea struck me, that, as the fumes of ammonia arising would kill plants if too strong, therefore it might kill insects as well. So I made a large hole in the centre of the bed, and put two bricks at the bottom for the pot to lie upon sideways; for, although the frame was moderately deep, the plant was too large to stand upright. I placed the bricks, because I thought that if the pot rested on the dung the roots might suffer. I put in the plant, closed the frame, and left it for an hour. Upon then examining, the insects were still alive. I thought the fumes would either kill the insects or plant soon, so I left it for three hours. I then took it out and examined it again—not an insect was alive, but the plant seemed to have enjoyed the process. I then, with the garden engine, gave it a thoroughly good washing.—(*Collage Gard.*)

Massachusetts Horticultural Society.

Saturday, Sept. 7th, 1861.—An adjourned meeting of the Society was held to-day,—the President in the chair.

The President appointed the following Committee to nominate officers for the ensuing year:—M. P. Wilder, Josiah Stickney, J. S. Cabot, W. R. Austin, P. Barnes, Geo. W. Pratt, and F. Winship.

Meeting dissolved.

THIRTY-THIRD ANNUAL EXHIBITION OF THE SOCIETY, Sept. 17, 18, 19 and 20.—The exhibition the present year was held in the Society's Hall, corner of Washington and West Streets. Owing to the state of the times it was not thought advisable to secure the Music Hall, but, by confining the show to choice plants and fruits, to occupy its own hall. An additional room was procured on the floor below for the vegetables, which proved ample for the exhibition. A new arrangement of the hall was made. The stands for cut flowers occupied three sides of the room; a table for fruits, separated by a space sufficient for visitors, encircled the hall, and all the room that could be spared in the centre was devoted to the plants, which covered a low broad platform fifty feet long. The effect was exceedingly good. The stands were filled with cut flowers, the tables crowded with

fruit, and the platform filled with superb specimens of plants. The library was set apart for the grapes, which were numerous and fine. On the whole, the Society may congratulate itself on the complete success of the arrangements, as well as the success of the exhibition.

It was thought that the exhibition of fruit would be exceedingly meagre; but happily this was not the case: the specimens, it is true, were not equal to last year, but there was quite as much exhibited as the space would accommodate, and generally of very fine quality. Pears were the principal fruit. Of apples, there were very few. Plums and peaches none, except from orchard houses. The grapes, both foreign and native, were abundant, and the former never better; Bowood Muscat, from Mrs. Durfee, were very handsome specimens of this fine grape. A dish of Salway peaches from H. H. Hunnewell was greatly admired; they were very large, eleven inches in circumference, and beautifully colored. It appears to be a valuable kind.

PLANTS IN POTS.—The show of specimen plants was very large and beautiful. Messrs. Hovey & Co. had the noble *Cyanophyllum magnificum*, *Caladium argyrites*, *Pteris argyræa* and *tricolor*, *Aràlia reticulàta*, *Maranta pulchella*, seven *Begonias*, including the new *B. hypargyrea*, *margaritæca*, *nivosa*, *Duchess de Brabant*, *Roi Leopold* and *Marshallii*; six Ferns, including *Gonophlebium appendiculatum*, *Phlebodium aureum*, *Lycopodium cuspidata*, *Gymnogramma tartarica*, and *Adiantum cuneatum*: the superb *Pandanus javanicus variegatus*, *Peristeria alata*, the *Esperito Santo*, *Fuchsias*, *Lantanas*, &c. From E. S. Rand, the *Cyanophyllum*, six feet high, *Pavetta borbónica*, *Rhopala glaucophylla*, *Aràlia leptophyllum*, *Pandanus javanicus variegatus*, *Cordyline*, *Cròton pictum*, *Cattleya Forbèsi*, *Latania borbónica*, Ferns, &c.; six large *Begonias*, including *grandis*, *Funkii* and *Duchesse de Brabant*, and other plants, some of the specimens being very large and well grown. M. Trautman had a good lot of plants and some very fine Ferns, among which we noticed the Golden Fern, and *Lycopodium lepidophyllum*. G. G. Hubbard contributed a lot of handsome Ferns, upwards of twenty sorts, some of them very well grown. From J. Nugent, a large and well-grown *Hydrangea variegata*. R. S. Rogers of Salem sent a very large *Maranta zebrina*.

BOUQUETS, &c.—The limited space prevented the display of the large bouquets usually exhibited, and they were omitted this year. Of parlor, table and hand bouquets, there was a fair display, and some very beautiful specimens of good taste. M. P. Wilder sent parlor bouquets, very good, and Messrs. Hovey & Co. supplied a pair which carried off the first prize. Messrs. Nugent, Trautman and others also contributed both parlor and hand bouquets. Some very pretty devices in flowers came from Miss Russell, Mrs. Kenrick, and other lady contributors.

CUT FLOWERS were, next to the plants, the most prominent feature of the exhibition. The stands were filled to overflowing from the President, G. G. Hubbard, C. Copeland, Hovey & Co., Barnes & Washburn, J. McTear, J. Nugent, W. H. Spooner, Jr., T. Walsh, Ed. Flynn, F. Winship, and others. The flowers were renewed every day, and continued fresh and

beautiful to the last. The display of *Gladiolus* was extensive among these, and the stand of Messrs. Hovey & Co. was enriched with magnificent specimens of their new Japan lilies *Melpomene*, *Erato*, *Terpsichore*, *Thalia* and *Urania*. Mr. Copeland's roses were abundant and beautiful, a very remarkable show at this season of the year. Mr. McTear's *Gladiolus* were unusually fine. The Society are certainly indebted to the cultivators of cut flowers for their exertions in contributing so liberally to the exhibition.

DAHLIAS.—These were shown for prizes on Friday, the last day. There were but two competitors, notwithstanding the favorable season. The flowers were unusually fine, and embraced several of the newer sorts. Among those of Hovey & Co. we noticed *Wm. Dodd*, *Ethel*, *Harlequin*, *Alba multiflora*, *Geo. Elliott*, *Chairman*, *Queen Mab*, *Splendid*, *John Dory*, *Pioneer*, *Warrior*, &c.; and of older varieties, *Le Phare*, *Lord Fielding*, *Empress*, *Triumph de Pecq*, *Lord Palmerston*, and especially *Baron Alderson*, more perfect than we have ever seen them.

The award of premiums was as follows:—

AWARD OF PREMIUMS.

PLANTS IN POTS.—For the best collection of ten plants, in ten distinct named species, to E. S. Rand, \$25.

For the next best, to Hovey & Co., \$20.

For the next, to M. Trautman, \$15.

SINGLE SPECIMEN.—For the best, to E. S. Rand, for *Catt. Forbesii*, \$10.

For the next, to Hovey & Co., for *Peristeria alata*, \$8.

For the next, to E. S. Rand, for *Rhopala glaucophylla*, \$6.

For the next, to E. S. Rand, for *Aralia leptophylla*, \$4.

BEGONIAS.—For the six best named varieties, to E. S. Rand, \$10.

For the next, to Hovey & Co., \$8.

VARIEGATED-LEAVED PLANT.—For the best specimen, to E. S. Rand, for *Pavetta borbonica*, \$10.

For the next, to Hovey & Co., for *Pandanus javanicus variegatus*, \$8.

For the next, to M. Trautman, for *Begonia Rex*, \$6.

For the next, to J. Nugent, for *Hydrangea variegata*, \$4.

FERNS AND LYCOPODIA.—For the best collection of six named species, or varieties, to Hovey & Co., \$10.

For the next, to G. G. Hubbard, \$8.

For the next, to M. Trautman, \$6.

For the next, to J. McTear, \$4.

PARLOR BOUQUETS.—For the best pair, to Hovey & Co., \$7.

For the next, to M. P. Wilder, \$6.

For the next, to J. Nugent, \$5.

For the next, to Thos. Walsh, \$4.

For the next, to J. McTear, \$3.

For the next, to M. Trautman, \$2.

MANTEL BOUQUETS.—For the best pair, to J. Comely, \$5.

For the next, to W. Carter, \$3.

HAND BOUQUETS.—For the best four, to M. Trautman, \$5.

DAHLIAS.—For the best eighteen blooms, to Hovey & Co., \$6.

For the best twelve, to J. Flynn, \$4.

For the best six, to Hovey & Co., \$2.

For the best bloom, to Hovey & Co., for Baron Alderson, \$2.

FRUIT.—After the remarkably fine fruit of last year, the specimens must have been unusually good to excite much interest. Though happily disappointed as the public were in seeing so much more fruit than they expected, there was, however, nothing of particular note, unless we except the Seckels of Mr. Williams, which were very large; it was the only pear which came up to the average of the specimens last year. Mr. Vandine had some good Bartletts, Mr. Eaton Louise Bonne, Mr. Bacon Merriam, Mr. Savage Marie Louise, all fair. Of new pears, we saw none worthy of mention. Apples were scarce, and the best only of moderate size and appearance. Grapes, especially foreign, were never better; we were quite surprised at the large display, as well as the excellence of the specimens, most of them being well colored. Mrs. Durfee, as usual, held her reputation, and Mr. Mansfield had some fine specimens. Native grapes were also good. The Delawares were quite ripe, and the Rebeccas also nearly mature. Concord was quite ripe. Mr. Rogers of Salem exhibited some of his seedlings, one of which, No. 4, we believe, was large and appeared promising, though not quite ripe. The Franklin and Marion were shown, but sour enough, and we fear poor enough too. Unless the new grapes brought before the public are better, we think cultivators will be cautious in their purchases.

PREMIUMS AND GRATUITIES FOR FRUITS.

APPLES.—For the best twenty varieties of twelve specimens each, the Lyman plate, to F. Clapp, \$20.

For the best five varieties, of twelve specimens each, to A. D. Williams, \$6.

For the next, to B. Harrington, \$5.

For the best dish of apples, twelve specimens, to F. Clapp, for Gravenstein, \$5.

For the next, to J. Eustis, \$4.

For the next, to H. Vandine, \$3.

For the next, to T. J. Livermore, \$2.

PEARS.—For the best twenty varieties, of twelve specimens each, to H. Vandine, \$25.

For the next, to W. Bacon, \$20.

For the next, to R. W. Ames, \$16.

For the best fifteen varieties, twelve specimens each, to J. Haley, \$15.

For the next, to J. Stickney, \$12.

For the next, to A. D. Williams, \$10.

For the best ten varieties, twelve specimens each, to W. R. Austin, \$10.

For the next, to J. Eaton, \$8.

For the next, to P. R. L. Stone, \$6.

For the best five varieties, twelve specimens each, to W. H. Barnes, \$6.

For the next, to W. P. Butterfield, \$5.

For the next, to G. A. Mudge, \$4.

For the best dish of pears, twelve specimens, to A. D. Williams, for Seckel, \$5.

For the next, to J. Savage, Jr., for Marie Louise, \$4.

For the next, to J. Haley, for Louise Bonne, \$3.

For the next, to J. Eaton, for L. Bonne, \$2.

PLUMS.—For the best collection, of not more than four varieties, to G. G. Hubbard, \$5.

GRAPES, FOREIGN.—For the best five varieties, two bunches each, to Mrs. T. W. Ward, \$10.

For the next, to E. S. Rand, \$6.

For the next, to G. G. Hubbard, \$4.

For the best two varieties, two bunches each, to W. H. Barnes, \$5.

For the next, to Hovey & Co., \$4.

For the next, to C. E. Grant, \$3.

For the best collection, not less than six varieties, to Mrs. F. B. Durfee, \$10.

For the next, to H. S. Mansfield, \$8.

For the next, to J. C. Potter, \$6.

For the next, to J. F. Allen, \$4.

NATIVE.—For the best specimens, to Geo. Davenport, \$6.

For the next, to Kendall Bailey, \$5.

For the next, to W. C. Strong, \$4.

For the next, to E. A. Bracket, \$3.

For the next, to A. Clement, \$2.

GRATUITIES.—To Hovey & Co., M. P. Wilder, and Walker & Co., \$10 each for collections of pears. To N. R. Childs and A. C. Fletcher, \$5 each for pears. To J. Savage, Jr. and H. Emerson, \$4 each for pears. To S. S. Bucklin, M. C. Mason, and S. Sweetzer, \$3 each for pears. To A. J. Dean, F. Parker, and A. Smith, \$1 each for pears.

To Hovey & Co., \$3 for apples. To S. A. Barnes, \$2 for apples. To H. H. Hunnewell, \$2 for Salway peaches. To J. Codman, \$2 for peaches. To H. Vandine, \$1 for plums. To J. Breck, \$3 for grapes. To J. W. Wellington, E. S. Rogers, and J. C. Whittin, \$2 each for native grapes. To B. B. Davis, J. Eaton, G. B. Clarke, G. G. Hubbard, F. Dana, and Geo. Newhall, \$1 each for native grapes.

VEGETABLES.—The exhibition of vegetables was extensive and superior in every respect. Remarkably large and fine Cauliflowers, Hubbard Squashes, many varieties of Tomatoes, Onions, and Cabbages, and some Marblehead Drumheads weighing 42 lbs. each. Messrs. Hovey sent two plants in pots of the new upright or French Tomato, (Tomato de Laye), loaded with fruit. It is one of the most valuable acquisitions, the fruit being abundant, large, and excellent; its erect growth will render it a favorite, as it occupies much less space than the old straggling sorts, and is really ornamental as well as valuable. Our limited space prevents us from giving a more complete account of the many handsome specimens, and compels us to omit the award of premiums.

Horticultural Operations

FOR OCTOBER.

FRUIT DEPARTMENT.

September has been unusually fine, without frost and free from storms of winds and rain. Up to the time we write our gardens and grounds look as fresh as in July. Fruit has greatly improved and trees of all kinds have made a good growth, and are ripening their wood well.

GRAPE VINES will now be at rest and will require little attention till the time of pruning in November. Cold houses will now be maturing their crop, and as frosty nights approach the temperature should be kept up by closing the house little earlier than usual, especially if it is desirable to have the grapes hang for a time. Early forcing houses should now be put in order for starting the vines, and if not already pruned this should be done immediately as heat should be applied next month. Protect the borders well to retain their warmth.

STRAWBERRY PLANTATIONS should still have attention; look them over occasionally and clean out all weeds, and lay in the runners, if the beds are not well filled.

FRUIT TREES may be transplanted as soon as the leaves begin to fall.

FRUIT TREES in pots should be placed in a warm sunny situation where they can fully mature their wood. Water sparingly.

FRUIT of all kinds should be gathered immediately and ripened in the house.

CURRANTS AND GOOSEBERRIES may be transplanted this month.

STRAWBERRIES for forcing should be placed in a frame in a warm sunny place, where they can be protected from heavy frosts.

PREPARE GROUND for planting, and store up manure for enriching the ground next month.

FLOWER DEPARTMENT.

The mild weather has been highly favorable for housing plants and preparing them for the winter, and everything will be in readiness for frost when it comes. Now is the season to attend to alterations in the garden, and make new plantations of shrubs or plants. Herbaceous plants especially, succeed much better transplanted in the autumn. Bulbs of all kinds should be got into the ground, or beds should be prepared for planting early next month. Take up everything that frost will injure, and half hardy stuff may be safely kept in a frame; many things are far more ornamental if the plants are strong. Do not neglect soils for winter use.

CHRYSANTHEMUMS will now require to have a prominent place in the house, where they will be conspicuous ornaments for the next month. Wash and clean the pots, and arrange them without crowding. Water with liquid manure. A few plants for a reserve bloom may be kept in a frame or very cool house and brought forward as wanted.

CAMELLIAS should be moderately watered after they are all arranged for the winter, and have occasional syringing in sunny weather. Look to the condition of the drainage and if choked up let it be made right.

AZALEAS should have a place in the very coolest part of the house, unless wanted for early bloom. See that they are clear of the thrip and red spider. Water rather sparingly at this season. Young plants growing vigorously should now be checked by removal to a cooler house.

PELARGONIUMS should now have a good airy situation, near the glass as possible, so that their growth may be short and stout. Water cautiously, and keep rather cool for the present.

CINERARIAS for early blooming should be repotted immediately, using a very light rich leafy soil. Place in a cool situation near the glass. Fumigate for the green fly.

BEGONIAS, where there is not the convenience of a stove, should be allowed to dry off, and then be placed away on a warm shelf till spring.

CALADIUMS should be kept *perfectly* dry all the winter.

HEATHS should be placed in the coolest part of the house, away from the flues, as nothing injures them so much as fire heat.

MONTHLY CARNATIONS growing vigorously and full of buds may have a shift into larger pots.

AMARYLLISES now done growing should have the pots turned on their sides until the season of repotting in spring.

FERNS of the very tender kinds should be more sparingly watered as the season advances. They will winter more safely.

CUTTINGS of Verbenas, Geraniums, Petunias, and other bedding plants, should be potted off as soon as rooted.

CACTUSES should be more carefully watered at this season, except the *truncatum* and its varieties.

TROPÆOLUMS should be repotted. The delicate kinds, such as *tricolorum*, &c., should have every attention at this season

FLOWER GARDEN AND SHRUBBERY.

Continue to mow lawns, as the fine weather has caused a good growth. Sweep up all dead leaves and rake and roll the walks. The lateness of the season is no excuse for neglecting this. Neatness now, and good clean walks are as necessary as at any time in the year. October is the season of labor in this department.

BULBS of all hardy kinds should be planted this month or early in November, and the beds should be ready for this purpose. Tulips and Hyacinths require a light rich sandy soil, and the manure should be very old and thoroughly rotted.

HALF HARDY PLANTS of all kinds should be got in before very heavy frosts, potting such as require it, and placing others in boxes of dry earth, and removing them to a frame or greenhouse.

DAHLIAS should be lifted.

HERBACEOUS PLANTS of all kinds may be transplanted.

SHRUBS may be successfully planted at this season.

PICOTEEES AND CARNATIONS should be removed to a frame.

DAISIES should be set out where they can be protected by a frame.

STRAWBERRIES.

In a late number, in our article upon strawberry culture, we stated that there were several peculiarities of strawberries which were important to be understood in their successful management, and that we should revert to the subject at another time; we now complete what we had then deferred for want of room.

And, as preliminary, we wish to advert for a moment to the condition of strawberry culture for the last ten or fifteen years, impressed as we are with the belief that it has not been so satisfactory as many infer, but that in fact it is, and has been, so far as American cultivators are concerned, little or no farther advanced than it was at the commencement of the period we have just named. If our exhibitions of this fruit are any evidence of this, it more than confirms our statement, and shows either a want of genuine interest in its culture, or a really retrograde condition of its growth.

Let those who think this a hasty judgment refer to the reports of various horticultural societies for fifteen years, either in our own pages, or in other journals where they are recorded. It will be seen that no such remarkable fruits have been exhibited as were very common years ago. Then we had reports of berries of magnificent appearance, and of large size, measuring five and six, to eight inches in circumference, twenty to thirty filling a quart measure; and these were not rare cases, but common everywhere from Boston to Cincinnati, as a report made by a committee of the Cincinnati Horticultural Society, in March, 1856, (Vol. XXII. p. 287,) will show. Every strawberry season our horticultural journals, and even the newspapers of the day, had frequent notices of the fine berries exhibited. In fact, the shows of this fruit were the most attractive and interesting of the year. How attractive those of other societies were we judge from the reports; but we can say, without fear of contradiction, that the exhibitions of the strawberry by the Massachusetts Horticul-

tural Society were far larger and more beautiful ten years ago than they have been since that period; and if we leave out the frequent displays of new foreign kinds, made by one or two exhibitors, we may safely say, they have been so meagre as to attract no attention. If we are in error in all this, we shall esteem it an especial favor to be corrected.

Such being the fact, to what can it be attributed? We have the same sorts under cultivation that we had ten years ago, besides several new varieties, and if we are to believe those who think they know all the characteristics of a fine strawberry, at least one that is better than all the rest; why then are the exhibitions yet so inferior? We should be glad to have a reply. Suffice it to say, that it has been left to a little club of zealous amateur and market cultivators in the town of Belmont, Mass., to surpass all the old established societies in the United States, and we believe we may say everywhere, in their exhibitions of this fine fruit. One attendance at their show will convince the most skeptical that either strawberry culture is wholly unknown, or else they have neglected the kinds most worthy of culture for inferior or worthless sorts. We are so certain of the really wonderful exhibitions this club has made for three years, that could the last one have been seen, by real lovers of the strawberry, it would create an entire revolution in strawberry culture.

While we are anxious to hear the cause of this decadence, we may offer our own suggestions as to the result, and this is the production of so many inferior seedlings, introduced with unheard-of excellences, which attract attention from their high-sounding qualities, and cause the neglect of established and thoroughly-tried sorts. We submit to no one in our eagerness to possess a really valuable variety of any fruit, or in our desire to make it speedily known, and would have a fair trial made of all that can claim any merit; but we can see no more reason why a strawberry that is known to be superior in every respect should be neglected for a new variety, than that the Seckel and Bartlett pears should be discarded, or the trees regrafted with new sorts, because they *are said* to be better.

It has been a pet idea with many cultivators and fruit

growers, that if all the 500 varieties of pears were reduced to 25 sorts the public would be benefited; and we have heard some suggest that if they were reduced to *half a dozen* that would be enough. Yet these same idealists say nothing about growing only half a dozen of the best known and established varieties of strawberries, but run after every new kind, throwing away the old, and are never satisfied because they have not found a variety which will flourish without any trouble, and bear abundance of the largest fruit; and when this turns up, they say nothing about the quality, but are content that they have fruit enough, though so sour that it can scarcely be eaten, while anything less excellent than the Bartlett and Seckel pears are hardly worth growing. An inferior variety of pear, if ever so productive, would soon be regrafted; but an ordinary strawberry, that grows freely and needs no care, is the ne plus ultra of this delicious fruit. When our correspondent Colonel Wilder so highly recommended Le Curé pear, he did so because it was one he thought cultivators would appreciate, it was so large, so productive and easily raised. But it turned out that pear growers were more fastidious than strawberry growers, the former demanding richness and excellence, while the latter are elated at having plenty of fruit, though as sour as vinegar.

Twenty years ago the Catalogue of the London Horticultural Society enumerated one hundred and thirty varieties. Five years ago they rejected all but 25, and at present not more than ten varieties are generally cultivated in Great Britain, the principal of which are the Keens' Seedling and British Queen. Very recently Sir C. Napier and two or three others have attained some prominence, but the kinds upon which successful market cultivators rely are the first named. Successfully for thirty years all the best English sorts have been introduced, and only four or five of these have been found worthy of a place even in the collections of our most zealous strawberry lovers; and these not for their general good qualities, but for some particular excellence, such as the Admiral Dundas for its huge size, and the Sir C. Napier for its lateness and beauty.

In this estimate of the condition of strawberry culture we

should do injustice if we omitted to state what is known to most pomologists, that the Massachusetts Horticultural Society have, with commendable spirit, recognized the proper characteristics of the strawberry and have refused to recommend a variety because it is new ; but having established a standard of excellence, unless in some important respects a variety surpasses that, it cannot claim to have any value. The American Pomological Society have rejected seventy varieties, and have well nigh come up to the action of the Massachusetts Horticultural Society, but under that fatal delusion of the best varieties for "market culture" it has placed upon its list not only inferior strawberries, but other poor fruits, of which the Cherry currant is an example. We hope at its future meetings it will rectify such errors.

What we wish once more to see is the grand exhibitions of strawberries of ten years ago. Those who think that "market culture" demands inferior varieties, provided the quantity is large, must be left to follow out their fancy. But let it not be said that pomologists, or those who cultivate for their own use, or even cultivators who are willing the public should have the best fruits, pursue the same course. If this is not to be the result of all our horticultural and pomological associations then they will have worked to but little purpose.

The peculiarities of strawberries are many, but are not observed only under long cultivation or by those who have made them a study. Our object is to notice some of them as having an especial bearing on their successful culture. In conversation with a noted strawberry grower he stated that quite a number of neighbors and cultivators came to examine his beds, and he gave them with great pleasure any information they asked ; yet, said he, there are many important things not asked about because they are not thought of, but which were almost essential to the great success of his cultivation. This is readily understood by all skilful men ; for though rules may be laid down, and be steadily followed, there are things that cannot be told, and which after all are the basis of success.

There is one class of strawberries, of which most of the English varieties may be considered the type, which we are

told require to be cultivated in hills, but why is not stated ; it is simply so. Experience has proved it and proved it right. Now the true cause is that they have an entirely different habit, possessing the capacity of forming an abundance of offshoots, if we may so call them, or crowns, which swell up, make new roots, and when the runners are checked, become as it were a dozen plants in one, every crown throwing up one or more fruit stems. If allowed to run too much the plants appear to get exhausted, and the young plants do not appear to attain their full maturity the first season, so that the old plants often die out, and the young ones have not sufficient vigor to produce a good crop. Hence cutting off the runners turns the vigor into the old plant and matures it. Admiral Dundas in particular will scarcely bear a decent crop unless the plants are two years old, when it is very heavy, and other sorts are mentioned in English works as having the same habit. It was, and still is the practice, with some English cultivators, to mow off the leaves of the strawberries as soon as the crop is gathered, and to immediately manure and dig between the plants. This would seem directly contrary to nature, yet we have seen enormous crops raised with this treatment every year for eight years on the same piece of ground. The loss of the leaves prevents the plants from making any runners, their whole energies being directed to their growth and the strengthening of the plants.

Many of our American seedlings appear to have a very dissimilar character, and will not succeed well under the treatment of the English varieties. If grown in hills, and the runners clipped, the plants do not extend by offshoots readily, the old plant becomes stumpy, and the result is a rather scanty supply of fruit stems, and these not strong and vigorous. Mr. Knight, who was a close observer, has stated in an article in the Transactions of the London Horticultural Society, that cutting away all the runners was injurious, as they are but incipient fruit buds, and if the plants are forced to throw them out, a portion of what would be fruit buds are changed to runners. Whether his theory is correct or not we cannot say ; but however we may view them, whether as incipient fruit stems or not, we are inclined to believe the

effect is the same, that is, if the runners are all clipped off the old plants will not bear so well as if allowed to make some runners, which should be afterwards hoed up if too numerous.

It may not be familiar to all cultivators that there are seven original species of the strawberry, from four of which about all our cultivated kinds are descended. These are the Scarlet, Black, Pine and Chili, each differing in habit, growth, hardiness, productiveness, acidity, flavor, &c. But by hybridization these have become so intermingled that they can no longer be easily distinguished, yet some partake of the original habits of the plants, particularly those bred from near relatives. Thus the British Queen and other large English sorts have the villous or woolly leaf of the Chili, and its tender habit. The Downton of Mr. Knight was from the old Black, and, like the parent, very high flavored, but a miserable bearer. But the latest acquisitions are through repeated hybridization and have less of the defects of either parent, though habit of growth, one of the most prominent characteristics, still remains. Experience therefore, it will be seen, is necessary to detect these, otherwise a greater or less degree of success will attend their culture; and hence the failure of a variety under the treatment of one cultivator when with another success is complete.

We do not intend to be understood as saying that all our strawberries are so dissimilar, but that there are kinds which are very distinct. We note a few of them. The Brighton Pine and Boston Pine have a dwarf compact vigorous habit, and the capacity of producing an immense number of flower stems. Hence if the plants are allowed to run together the crop proves a partial failure from the want of nourishment. However feeble the plant it still throws up its flowers, and if the soil is light and the season dry the crop is scanty enough. But grown in hills or single rows, and the runners partially clipped and the spaces between the rows kept broad and clear of plants, the crop is immense, each plant producing and perfecting 100 to 200 berries. The Wilson has much of the habit of these sorts, but its flower stems are far less numerous, and it will produce a good crop in thick beds, though a better

one when kept rather thin. Neglected culture will consequently not endanger a crop as it will with the others.

The Jenny Lind and Scott's Seedling, among our American sorts, are similar to the Wilson, and produce well in beds or rows, though we think the Jenny Lind will produce the best crop in beds. Mr. Fay, the originator, cultivated it in this way and we have never seen such large crops of this kind. The new and fine variety, La Constante, unlike the large English varieties, succeeds admirably either in beds or rows. It does not make too many runners, and each plant rarely shows more than two or three flower stems.

Of quite another character is the Hovey's Seedling. All attempts that we have ever seen to grow it in hills have failed. The plants will not extend by offshoots or form numerous crowns, and the largest plant we ever noticed would not produce more than two flower stems; age in fact seems to injure the plants. Yet cultivated in beds, as we directed in our former article, there is with the usual care an immense crop. The runners extend in such regular proportion as to cover the ground, and all produce fruit but the late runners which should be hoed up, a space of 12 inches on each side of a row being filled with robust fruiting plants. One reason that some fail in its culture is that too many late weak runners are left which exhaust the ground and produce no fruit. It is not uncommon to see plantations of strawberries covering a piece of ground 10 to 20 feet wide without a single intervening space, the fruit being gathered by walking over the vines. This will do for some sorts, but not for this. The Austin Seedling appears to partake of the same character as the Hovey, though our experience with it is yet too limited to decide with certainty. Durfee's Seedling, a variety now little cultivated on account of its acidity like the Wilson, had the same habit, and McAvoy's Superior was another. Even the Early Virginia gave the best results in beds. Thus a knowledge of the peculiarities of the plants is necessary to prove the best mode of culture.

Of fertilization it may be thought unnecessary to speak, as there are but two or three varieties worth growing which require it. But as it is all important to the Hovey we may

allude to it here. As the latter is a late flowering strawberry it follows that the fertilizer should not be too early, otherwise the blossoms will not be impregnated. The Early Virginia was formerly planted, and then the Boston Pine, but as this fails in beds the Jenny Lind and Brighton Pine were used, but as the Brighton blights and fails in beds this is now given up and the Jenny Lind substituted. Its earliness is its only fault here, and the late blossoms of the Hovey are not well fertilized. Hence the complaint often made that the first berries are large and the rest small. The Boston Pine will give the greatest results, as it flowers before the Hovey and continues in bloom as long as that variety. This year it so happened that a bed of Hoveys in our grounds had no other variety very near but La Constante, and though full of flowers and a heavy crop it did not fertilize the Hovey well. McAvoy's Superior and other pistillates undoubtedly need good fertilizers, though their earliness or lateness makes some difference.

And lastly, in regard to soil, which has a material effect on the plants. All the English sorts like a heavy, stiff, even clayey loam on a rather dry subsoil, otherwise they winter badly; while our American kinds, though better on some soils than others, will produce well in peaty or lighter earths. Some kinds seem to exhaust the soil in one crop, while others will continue for two, three or even four years. Mr. Barnet, in his descriptive account of all the kinds cultivated in Great Britain in 1824, mentions quite a number which differ in this respect; in fact his excellent paper, published in the Transactions of the London Horticultural Society, covering seventy-five pages, (Vol. VI., p. 145,) is well worthy the attention of amateur cultivators of this fine fruit, showing how different are the original species, and what peculiarities the several seedlings from them possess.

Perhaps we may have exhausted the subject, but with Mr. Barnet's example before us, and which is almost too short from its great interest, we trust we have not exhausted the patience of enthusiastic fragarians.

POMOLOGICAL GOSSIP.

MR. ROGERS'S SEEDLING GRAPES.—Considerable has been said about the seedling grapes raised by Mr. Rogers of Salem, but we have never had an opportunity to see or taste any of the fruit till the present autumn, which has been so very favorable that even such Isabellas as were protected last winter have quite ripened their crop. Some 10 or 15 varieties were raised by Mr. Rogers, but we believe only two of them appear to possess any very particular qualities. These have not yet been named, but have been shown as Nos. 4 and 15 at the exhibitions of the Massachusetts Horticultural Society. No. 4 is a large black grape nearly as large as Union Village, and No. 15 is a reddish grape, resembling the Catawba, with a rather larger berry and looser bunch; both of them were quite ripe the first of October, at the same time as the Isabella. In regard to quality, we should consider them very good, and if early enough to ensure yearly crops, worthy of attention. The skin is rather thick, and there is rather too much of the foxy taste, but the handsome bunches, large berries, and fair quality, will place them before many of the varieties which have been brought to notice. We shall give a drawing and further account of No. 15 in another number, and we would suggest to Mr. Rogers the propriety of giving this, and all his seedlings worthy of cultivation, a name. Nothing is more inconvenient, or leads to more confusion, than sending out fruits under numbers.

THE MARGUERITE STRAWBERRY.—In a late number we gave some account of this new French variety. As we have this new sort under culture, and hope to have some good specimens of the fruit next season, we copy a complete notice of it from a French journal:—The fruit of this is very large, from three quarters of an ounce to one and a half ounces in weight, of the form of an elongated cone, shining red, coloring well even to the point. Seeds small and numerous, set almost on the surface. Flesh, bright orange near the outside, white at the centre, solid, juicy, sugary, perfumed. Core none, or soft. Scapes vigorous, with hairs spreading

horizontally. Leaves long; leaflets oblong-obovate, widely and regularly crenated, bright green above, and gray beneath. Plants vigorous, hardy and productive. This variety, which is early and forces well, was raised from Sir Harry, fertilized with some sort unknown, at Chalons-Sur-Marne, by M. Lebreton, and fruited for the first time in 1859. Compared with other sorts, according to the Comte de Lambertye, the Marguerite ripens at the same time as the Vicountess Hericart de Thury, and in point of quality the Marguerite has all the excellent properties of the Princesse Royal (Pelvilain) without its fault, viz., that of having a hard core.—(*Comte de Lambertye in Journal de la Soc. Imp.*)

THE ADIRONDAC GRAPE.—Our Canadian neighbors speak in high terms of a new grape, which was shown at the annual exhibition of the Montreal Horticultural Society, held at the Crystal Palace in Montreal the last of September. These grapes were from Mr. J. W. Bailey of Plattsburg, N. Y., who discovered it growing at the foot of the Adirondac, some years ago, and which he has named after its native locality the Adirondac. Mr. Bailey, in a note in the Country Gentleman, states that it usually grows about the size of the Isabella, but more the form of the Diana, quite compact and slightly shouldered. It ripened this year the 17th September, two weeks before the Concord and Delaware. The Adirondac, he says, has produced fruit for five or six years, and ripens from the 5th to 20th September.

The Montreal Herald says “the specimens were considered one of the most valuable contributions to the exhibition; that it will prove hardy with ordinary winter protection, in all the Northern States and Canadas, and will be par excellence the grape for the North.”

This very flattering description must we think be taken with some grains of allowance. What ordinary protection means we do not know, but we should suppose a native grape found growing at the foot of the Adirondac would need none, at least in the United States. However we will not prejudge it, but if on a fair trial it proves all that is here said about it we shall hail it as not only a great acquisition in itself, but as a parent from which seedlings may be raised, highly valuable.

DUCHESS DE BORDEAUX PEAR.—A new variety just introduced by M. Leroi, and described as follows:—Medium-sized, two and a half inches long and seven and a half in circumference; form roundish, irregular, imbricated, very often swollen on one side, flattened and sometimes even, drawn in on the other and divided from the latter by a deep suture which reaches from the eye to the stem; it is dented and its surface is uneven. The stem is about three quarters of an inch long, bent and planted in its surface, but bearing at its insertion on one side only a small nipple, fully characteristic. The eye is large and big enough, placed in a deep cavity. The skin is very thick and rough, of a deep brownish yellow, but some parts of it are, however, of a lighter yellow. As to the form and color it bears some likeness to the Fortuneé pear. The flesh is of a yellowish white, melting, sweet and very juicy. It is a delicious pear, equal in quality, and is in truth superior to any kind of winter pear, without excepting the Easter Beurré. It begins to ripen in February, and continues in perfect state through March and April. Originated by M. Secher, near Angers, from a lot of wild pear seeds sown in 1850. It is very productive.

ARBORICULTURAL NOTICES.

VARIEGATED ASH-LEAVED MAPLE.—Some five or six years ago, M. Carrière made known through the *Revue Horticole*, that M. Bonamay, of Toulouse, had sent out a new plant, remarkable for its beautiful variegated foliage, and that it was a variety of the Negundo maple, (*Acer negundo*, or *Negundo fraxinifolium*.)

This Negundo, or Ash-leaved maple, is well known as a handsome tree of rapid growth. Its branches, which are of a fine green in the young shoots, acquire a pleasing ash-gray hue as it gets older. The leaves are impari pinnate (pinnate with an odd one), consisting of five or seven oblong leaflets, of a bright green, and are produced later than the flowers, which hang in clusters of red and green. The keys seldom

ripen; they are small, and borne on long pedicels. The species grow abundantly in many parts of North America, but chiefly in Pennsylvania, Carolina, and the Alleghany mountains, where it is called Box Elder.

The history of the subject of this article is as follows:—In June, 1853, a grand horticultural exhibition was held at Toulouse, and MM. Barilet and Masson were invited from Paris to assist in awarding the prizes, the principal of which was a gold medal given by the Empress. After the judges had completed their labors, the two Paris judges were walking in the garden talking over the merits of the respective exhibitions, when one of them spied on a stage in an obscure corner a young tree, as they supposed, languishing in a pot filled with sand, and which had escaped the attention of the judges. It turned out to be a young shoot, cut, it is true, from a vigorous tree, but burnt up by the southern sun, withered and neglected; still it retained a fine appearance, its foliage being beautifully variegated with white, green, and rose color. The tree itself was soon discovered, and most of the judges were struck with equal admiration at so charming a tree, which nevertheless had existed at Toulouse for a long time. It was a chance spot in the nursery of M. Fromant upwards of fifteen years ago. It is very handsome, with a round head, covered with foliage beautifully variegated, as above described; and the wood is streaked with yellow. It was propagated, and the young plants were sold at half-a-franc each. After seeing the tree the judges were unanimous in awarding to M. Fromant the large gold medal, though it appears they had previously intended it for a collection of plants from another exhibitor. After this the variety was rapidly propagated, and the plants rose in price from almost nothing to 1*l.* each. It is now extensively employed, as it deserves to be, in ornamental gardening. A fine plantation of it forms one of the principal ornaments of the western slope of the Bois de Boulogne, near the kiosk of the Empress.

Although the absence of green coloring matter in portions of the leaves of this and other variegated plants must be considered as a kind of disease, yet the variegated ash-leaved maple is, notwithstanding, very vigorous, and at the same

time remarkably constant in its variegations. Budded on the common Negundo it pushes vigorously.

CHAMÆROPS FORTUNEI.—It will be noticed in another page that this beautiful palm proved quite hardy in Kew Gardens last winter, with the thermometer below zero. Its very great hardiness, even if it should not stand our winters, renders it extremely valuable, as it is the only palm that can be kept in the open air after our first frosts. It may thus be allowed to stand out in vases until very severe cold, and be put out again as early as April, thus ornamenting the lawn for eight or nine months of the year. Perhaps with a slight protection of leaves, which may easily be given on account of its large leaves and spreading growth, it would stand the coldest weather unharmed. The experiment is well worth trial, as we know of nothing more picturesque and effective than the ornamental foliage of these plants.

NEW SPECIES OF ARAUCARIA.—A new species of this fine tree has been discovered in Australia, growing in a very elevated locality, and though probably not hardy enough to stand our northern winters, will undoubtedly prove an interesting addition to collections of Coniferæ, grown in pots, or planted out in summer, and protected during the winter. It is thus described in a communication in the Gardeners' Chronicle:—

ARAUCARIA RULEI.—We have the honor of forwarding by the Great Britain steamer, from this port, directed to you, a small lateral shoot, having for its terminal point the remains of a fruiting cone, along with a few seeds of the celebrated new species of Araucaria, named Rulei, a brief description of which, together with a specimen, was sent to Sir W. J. Hooker, by Dr. Mueller, of the Melbourne Botanic Gardens, last November; of this some account has already appeared in your columns. When Dr. Mueller made his report he was unable to determine whether the plant was a true Araucaria or a subgenus, allied to that noble tribe of Coniferæ. We are now anxious to solve this question, by sending you the above for your determination. Mr. Duncan, our collector, the original discoverer of A. Rulei, has just forwarded to us a few thousand plants of it in excellent condition, being all he could

collect of one year seedlings. In his former expedition, every plant failed to grow, chiefly because they were too old to move, and at that season there were no year-old seedlings. Mr. Duncan speaks of this new acquisition as follows:—Although the nearest approach in appearance to *A. Rulei* is *A. imbricata*, the latter is not for one moment to be compared with the grandeur of the former, being without exception the grandest and most beautiful tree at present existing on the face of the earth. “Only imagine,” he adds, “*A. Rulei* growing to the height of about fifty feet, and thirty feet in diameter, with six times the number of branches of *A. imbricata*, but of more rigid and tubular form, forking in all directions, at equi-distances, in the most symmetrical arrangement, feathered down to the ground, and the whole covered with the glistering imbricated very dark-green foliage, shining in the sun as so many polished mirrors; and the tree itself growing on the very summit of an extinct volcano, in debris as hard as adamant in summer, and deluged with rains in winter, accompanied with hurricanes of stormy cold winds, and where not a blade of grass or other sign of vegetation exists for hundreds of feet below, and also that the whole group of trees is confined to the limited radius of half a mile. The latitude is on a parallel with that of *A. Bidwellii*, but situated on double the elevation of the habitat of that tree. We have no doubt but that you will justify us in stating that this species is out of the category of all ordinary plants, and will ultimately deserve its name of ‘Grand Plant,’ by universal consent.”—(*Messrs. Smith & Adanson, West Melbourne.*) To this account Dr. Dudley adds the following description of *A. Rulei*, by Dr. Mueller:—A new species of the magnificent genus *Araucaria* has lately been discovered by Mr. Wm. Duncan, botanical collector to John Rule, Esq. of Melbourne, having been found covering the summit of a lofty volcano, on an island near New Caledonia. It may be designated, in honor of the gentleman through whose arrangements the discovery was accomplished, *Araucaria Rulei*. It attains, according to Mr. Duncan, a less gigantic height than any of its congeners. In habit it bears more readily comparison with the Chilian *A. imbricata* than with any of the Australian or Poly-

nesian species, but differs already from the former in although acute yet not pungent leaves, which are not stiolated, and from one-half to two-thirds inch long. The closely and multifariously imbricated leaves distinguish it at once from *A. Bidwellii*.—(*Gard. Chron.*)

RETINOSPORA ERICOIDES, is one of the most beautiful of the smaller and more delicate Coniferæ, with the habit and foliage of a heath, which it more resembles than a coniferous tree. It forms a dense spreading bush or low tree, branching close to the ground, and for small gardens or for plantations of small shrubs, rhododendrons, &c., is really a most valuable tree. It is not until within a year or two that it has been found perfectly hardy, but having stood out entirely unprotected the last winter, without the loss of a single branch, it may with safety be introduced everywhere in this latitude. It will be a most beautiful tree for cemeteries; its neat, compact growth and moderate size taking the place of larger and coarser foliaged evergreens.

EFFECT OF SOIL AND SITUATION ON THE HARDINESS OF TREES AND SHRUBS.—Sir W. J. Hooker, in giving an account of the effect of the severe frost of last winter upon the trees and shrubs at Kew, makes the following observations, which deserve to be remembered by all who are planting the less hardy trees, as upon this depends almost the success or failure of many species. It will be noticed that Dr. Hooker states, “that within a few hundred yards, on the opposite side of the river Thames, on a clay soil, the destruction has been ten times greater than at Kew.” Indeed it would be a waste of time and expense to attempt the growth of many trees and shrubs on such soils, as they would be sure to suffer more or less by the winter.

The soil throughout the pleasure ground, as elsewhere in the Kew district, is very light and sandy, consisting for the most part of alternate beds of sand and gravel; the vegetation consequently burns very much during the summer, and the demand for leaf mould and better soil for the plants is insatiable. In point of number of species and varieties, the collection in these grounds is very large indeed; the aim being to render it a complete arboretum or illustration of all

the trees and shrubs that will bear the open climate in that locality. Owing to the nature of the soil and climate, however, there are whole groups of plants that do not at all succeed, as for instance the majority of spruces, firs, larches, ash, elders, clematis, many piceas, (*Webbiana*, *pectinata*, &c.) very many kinds of roses, and such plants generally as thrive on clay or other retentive soils, or that require a cool or rocky subsoil. Within the last twenty years also the level of the Thames has been permanently lowered, withdrawing a large supply of moisture from the roots of the trees; a vast number of trees have been cut down in the course of the laying out the grounds; and the consequent death of others, and disappearance of mosses, hepaticas, &c., on the barks of the survivors, and on the ground, both testify to the increased drought of the locality; nevertheless, when it is considered that we have bad or indifferent specimens of all such plants as do not thrive, and that the following list is a faithful one of all that have been killed, or cut down to the ground, it is evident that the locality is a most favorable one for a botanical collection, in the most essential respect of climate, that could be selected. Within a few hundred yards, on the opposite (clayey) side of the Thames, the destruction has been ten times greater than at Kew; and whole groups of plants, such as deodars, common laurels, hollies, rhododendrons, araucarias, &c., which have been materially injured or killed in the neighborhood of London or elsewhere, are absolutely unscathed at Kew; and of common evergreens, the *Laurus nobilis* and *phillyrea* alone lost many of their leaves, and these are already replaced.

Dr. Hooker then gives three lists of plants, viz.: (1) Plants killed by the frost. (2) Plants killed down to the ground, and (3) Plants that have proved quite hardy.

In the list of those killed are *Cuprèssias sempervirens*, *funèbris*, *thurifera*, *Uhdeana*, *Goveniana*, and *Benthàmii*; *Juniperus tetragòna* and *flàccida*; *Abies Brunoniana*; *Pinus pátula*, *radiàta*, *Hartwegi*, *insignis* and *sinénsis*. All these therefore may be considered beyond hope of succeeding north of Washington.

Among the plants killed to the ground, which are mostly

such as have never been tried out here, is the well-known *Hydránga quercifolia*, which is never injured in our ordinary winters.

The list of entirely hardy plants is large; but as some guide to enthusiastic amateurs who would like to try all that have resisted zero weather at Kew, we give it entire. Several have been proved to be hardy, and perhaps if a soil as favorable as that at Kew is selected they might all succeed, at least without much injury:—

<i>Cunninghámia sinensis</i> ,	<i>Mahónia intermèdia</i> ,
<i>Picea bracteàta</i> ,	——— <i>Beàlii</i> ,
<i>Pinus austràlis</i> ,	<i>Bérberis Wallichiana</i> ,
<i>Pseudo Làrix Kæmpferi</i> ,	——— <i>concinna</i> ,
<i>Biòta meldénsis</i> ,	<i>Cistus ladaniferus</i> ,
<i>Cryptomèria japónica</i> ,	——— <i>laurifolius</i> ,
——— —— <i>nàna</i> ,	<i>Acer villòsum</i> ,
——— <i>Lóbbii</i> ,	<i>Hypèricum oblongifolium</i> ,
<i>Cupréssus Lawsoniana</i>	<i>Limònia trifoliàta</i> ,
——— <i>nutkaénsis</i> ,	<i>Skimmia japonica</i> ,
——— <i>McNabiàna</i> ,	——— <i>laureòla</i> ,
——— <i>Knightsiana</i> ,	<i>Camellias</i> , various,
——— <i>macrocarpa</i> ,	<i>Ceanothus integerrimus</i> ,
<i>Fitzròya patagónica</i> ,	<i>Collètia serratifolia</i> ,
<i>Libocèdrus chilénsis</i> ,	<i>Piptánthus nepalénsis</i> ,
<i>Retinospòra ericoides</i> ,	<i>Spiræ'a grandiflora</i> ,
<i>Thuja gigánteà</i> ,	<i>Weigelia ròsea</i> ,
<i>Cephalotáxus Fórtunei</i> ,	——— <i>amábilis</i> ,
——— <i>drupàcea</i> ,	<i>Senecio cinerària</i> ,
<i>Dacrydium Franklinii</i>	<i>Azàlea amæna</i> ,
<i>Saxe Gothea conspicua</i> ,	<i>Arbutus Menzièsi</i> ,
<i>Pæonies Fortune's var.</i>	<i>Ilex latifolia</i> ,
<i>Illicium floridànum</i> ,	<i>Quercus glàbra</i> ,
——— <i>religiòsum</i> ,	<i>Fagus antàrctica</i> ,
<i>Tasmania aromática</i> ,	——— <i>betuloides</i> ,
<i>Mahónia japónica</i> ,	<i>Chamærops Fortunei</i> .

That some of these have already failed is well known; but it may have been in part owing to a wet soil; others may stand a few days of about zero weather, but fail at 12° below, repeated once or twice through our winters of three months. *Camellias* flourish in Baltimore in the open air, and we have had them out without much injury; but the situation should be sheltered from the sun. The list is interesting and we trust our zealous amateur planters will give the plants one fair trial.

CULTIVATION OF EVERGREENS.

BY EVELYN.

It remains to speak of a few more species belonging to the *Abietinæ*, before we pass on to the Cypress family. One of the most remarkable of the pines of the southern hemisphere is the Chili pine—the *Araucaria imbricata*. This belongs to a genus of majestic evergreen trees, which are indigenous, not only in South America, but also in Australia and Polynesia. The Chili pine is the only one of the family which is believed to be hardy, and this species is said to be incapable of bearing our American climate above the latitude of New York city. In Great Britain it has the reputation of being as hardy as the cedar of Lebanon. The *Araucarias* are evidently but variations of one species, of which the *imbricata* may be considered the type, varying with the circumstances and conditions of climate and soil.

The *Araucaria* is not considered a true pine by Humboldt, the true pines being in his opinion strictly confined to the northern hemisphere. By common observers, however, if they are not botanists, it would be regarded as a pine, having almost all the sensible qualities and the general appearance of this tree. It is a remarkable circumstance that the female tree alone of the Chili pine attains any considerable height and size; and this is often 150 feet in height, while the male tree seldom exceeds forty feet. The trunk of the female tree is straight, without knots, and is central surrounded by whorls of branches, separated by greater distances than the whorls of our northern *Abietinæ*. The bark is double, and the inner bark which is porous, produces great quantities of resin. The most singular appearance is produced by their long, sparse branches, covered with imbricated foliage, causing the young trees to resemble immense serpents “partly coiled round the trunk, and stretching forth their long slender bodies in quest of prey.”

“The wood of the *Araucaria* is red when it has been affected by the forest fires; but otherwise it is white, and towards the centre of the stem bright yellow. It yields to none in hard-

ness and solidity, and might prove valuable for many uses, if the places of growth of the tree were less inaccessible. For ship-building it would be useful; but it is much too heavy for masts. If a branch be scratched, or the scales of an unripe fruit be broken, a thick milky juice immediately exudes, that soon changes to a yellowish resin, of which the smell is agreeable, and which is considered by the Chilians as possessing such medicinal virtues, that it cures the most violent rheumatic headaches, when applied to the spot where the pain is felt."—(*Bot. Mag.*)

The rate of growth of this tree is probably slow; such at least is the inference drawn from the experience of cultivators in Great Britain. But this slowness of growth ought to be expected when a tree from a warm climate is introduced into a cold one, where the growing season is so much shorter than in its native climate. The native region of the Chili pine is the Andes, forming the eastern boundary of the country of Chili, so far up the mountain range as to be exposed to snow and frost. This accounts for its hardness, compared with other species of the same genus, which are found in lower regions and in warmer climates.

The same treatment is recommended for the cultivation of this tree as that which is given to the cedar. The seeds, however, being larger, require to be planted somewhat deeper in the ground. Cuttings will grow readily, taken from the recent growth, and properly managed they will assume a leading shoot, and become as symmetrical as seedlings. In several places in Scotland the *Araucaria* is said to stand all winter in the open air without injury, though unprotected. It is probable that the tree might be rendered hardy in our New England climate, if it could, while young and tender, be protected during winter, without suffering injury from the excess of such protection.

THE CUPRESSINÆ, OR CYPRESS FAMILY.

This is a much less interesting family of evergreens than the *Abietinæ*, though several species are quite celebrated. For the most part they are low trees, or shrubs, only a few species attaining a lofty height. Among them there is only

one species which is deciduous, and this is the Southern American Cypress—the *Taxodium distichium*. In this respect it resembles the family of *Abietinæ*, which contains only one genus, (we might say species,) which is deciduous, which is the well-known larch. The cypress tribe differ in many very important respects from the *Abietinæ*; their foliage is fleshy and imbricated, and not acicular; and their branches are never given out in whorls, but spring from a single central shaft at all points, and resemble consequently the pines and firs in their pyramidal shape and general outlines.

The most of the Cypress family are natives of warm climates; hence Byron speaks of the land of the cypress and myrtle as one and the same. Great Britain has only one species—the common juniper; though there are as many as forty foreign species that are cultivated in England in the open air. The North American continent contains several species, of which the well-known White cedar and Red cedar and Southern deciduous cypress are the most remarkable. Loudon remarks: “It may be observed of all the species of *Cupressinæ*, that it is not easy to describe by words, and scarcely practicable to illustrate by figures, without the fruit, many of the different species of this family. Nevertheless to a practised eye, it is easy to distinguish the three leading genera, viz., *Thuja*, *Cupressus* and *Juniperus*, by a portion of the branch, without either flowers or fruit. The flattened, scaly, imbricated shoots of all the *Thujas* are two-edged, whether the specimens are young or old; those of *Cupressus* are scaly and imbricated, but angular or roundish, *and never two-edged*; and those of *Juniperus*, in the young state of the plants, have distinct acerose leaves, generally glaucous above, and often in threes joined at the base.”

The cultivation of plants of this family differs not much from that recommended for the *Abietinæ*; but it should be remarked that they are much more readily propagated by cuttings, and this remark will apply to all the species. The seeds commonly lie a whole year in the ground, and are most properly sown in the spring, after being collected in the winter, or late in the autumn. In the latter case they may be

planted in autumn, and if the season and other conditions be favorable, they will come up in the following year. Cuttings are made in the autumn from the recent growth, with a small portion at the end of the wood of the preceding year. They are planted in sandy loam protected from the sun, and covered with handglasses. In winter they should be sheltered by mats from severe frosts; for however hardy the species it needs careful nursing when grown in this artificial manner.

The *Arbor Vitæ* (*Thuja*) is, rather singularly, without any English name,—the *Tree of Life*, which is the literal meaning of the words, never being applied to it. The two principal species of this genus are the Eastern arbor vitæ, (*Thuja orientalis*, now called *Biota orientalis*)—and the Western arbor vitæ, (*T. occidentalis*.) But there are several subspecies or varieties, principally from the northwest coast. The Siberian arbor vitæ, so called, one of these, is much superior to the American species in the density and color of its foliage, more luxuriant in its growth, and forms a more bushy tree.

The *Thuja orientalis* is a native of rocky situations in China and Siberia, and some other parts of Eastern Asia. It is a very low tree, fastigate in its manner of growth and seldom attaining a height above 20 feet. It is, therefore, in this respect inferior to the American tree, as it exceeds it in density of growth. The fruit remains on the tree during winter, and opens and sheds its seeds in spring or during any warm days that occur in the latter part of winter. It is said to have been first sent to Europe by the French missionaries in China and Japan, who probably regarded it as the *Tree of Life* mentioned in Holy Writ.

In the neighborhood of London the seeds are sown in pots soon after they are gathered in autumn, as by so doing the plants make a much larger growth than when sown in the spring. Layers generally require two years to obtain perfect roots, and cuttings are said to be more difficult to strike than those of the American species.

The American arbor vitæ (*T. occidentalis*) frequently attains, according to Michaux, the height of 45 or 50 feet, with a trunk sometimes more than ten feet in circumference. Its

growth, however, is extremely slow, so that if the timber were valuable, it would be very unwise to cultivate the tree for this purpose. The only value of the arbor vitæ, of this or any other species, is its fitness for purposes of ornament, for hedges of different kinds, and for a bulwark to protect an enclosure from the force of the winds. To this purpose it is admirably adapted.

The American arbor vitæ is found in all the region about the River St. Lawrence, and in the mountainous parts of Virginia and Carolina. It is found in abundance also on the banks of the Hudson, and on the shores of the great lakes. In Canada it is called the White cedar. It seems to require a wet soil, notwithstanding its predilection for mountainous situations, being never found on sandy levels; and abounding in proportion to the humidity of the soil. In swamps it forms sometimes the only growth, when the soil is too wet to sustain any other tree. In drier situations it is mixed with firs and cedars; but is never found in dry uplands with hardwooded trees. The most common use made of this tree is for posts and rustic fences; the posts will last thirty or forty years, and the rails nearly twice that length of time. The leaves are pounded with hogs' lard by the country people, to make an ointment for rheumatism.

The Pendulous or Weeping arbor vitæ resembles a Juniperus more than a Thuja, but very little is positively ascertained respecting it.

Some of the new species from Columbia River are said to form gigantic trees 100 feet high and very ornamental.

In the next number, I shall conclude this series of articles with the Cypress and Juniper.

WINTER AND SPRING FLOWERING BEGONIAS.

THE Begonia is a very extensive family of plants, embracing many very handsome flowering species as well as the magnificent and picturesque foliaged kinds. Some of them are among the oldest and most familiar parlor and green-

house plants, easily cultivated, and blooming for a long period. But the researches of collectors in new regions have resulted in the accumulation of a great number of species, some of which are only botanically interesting, or remarkable for their foliage, while others are highly ornamental as flowering plants.

As is too often the case in all classes of plants where new sorts are constantly added, the old are often neglected, and not infrequently the new are exclusively cultivated to the exclusion of old species or varieties that are far more beautiful. It is so with the *Begonia*, the old *incarnata* being still one of the best, as well as *fuchsoides*, which when properly managed is one of the very finest objects in the greenhouse during the winter. Plants six feet high and clothed with its pendent racemes of scarlet flowers, yield to few others at that season of the year. *B. nitida* is another very elegant species, with very large clusters of blossoms.

Among the new acquisitions, however, there is one which is really very fine; it is the *B. rosea carminata*, so fully described below that we need not repeat it here. It is now coming into bloom in our collection, and its thickly set and pendent racemes of rosy carmine flowers, decorating its neat and very glossy foliage, renders it especially desirable. In the latter respect it is particularly noteworthy, for it forms a really handsome plant even when not in flower; its red stems, medium-sized round glossy leaves, thickly set upon the branches, rendering it a conspicuous object.

The *Begonias* are of the easiest treatment, requiring simply to be pruned in and started into growth in spring, and plunged out in the ground in a warm aspect in June. Here they will grow freely, and by pinching off the shoots occasionally they will form compact specimens, some of the sorts ready for blooming as soon as they are returned to the greenhouse or parlor, and the others succeeding them till the return of summer, when the ornamental-leaved kinds take their place, keeping up the display of either flowers or foliage the whole year.

As to soil they are not so very particular, provided it is light and rich. That which we have found best is a mixture

of loam, leaf mould and peat, in about equal parts, with sufficient sand to render the whole porous and open. In the operation of potting, the soil should not be made too firm.

Early in September, before the nights become cold, the plants should be returned to the house, shifting the later flowering kinds if they require it, but watering sparingly in order to ripen the wood, otherwise a premature growth may be started, and the free production of flowers prevented. Where very large specimens are wanted they may be planted out in a prepared bed of rich leafy soil, where they will attain a large size, regulating the shape by frequent pinching the shoots. In September they should be carefully lifted and potted, placing them in a partially shaded close house for a few days till well established, when they should have the full light and air, with slight waterings to perfect the summer growth, which is absolutely essential to the free production of flowers. *Begonia fuchsoides* treated in this way will make specimens six feet high and two feet broad, perfect pyramids of foliage and beautiful flowers throughout the winter months.

The following descriptive list of some of the most desirable *Begonias* is from Henderson's *Illustrated Bouquet*, and is so complete that we substitute it for descriptions of our own:—

B. ROSEA CARMINATA.—A very ornamental hybrid, raised between *B. fuchsoides* and *B. Ingramii*. It is a robust, erect-growing plant, of neat branching habit, having dull brownish-red stems, glossy, obliquely ovate, crenate-serrate, bright green leaves, and terminal gracefully pendent cymes of rich rosy carmine flowers. The staminate flowers consist of four cordate ovate fleshy divisions, the two inner being smaller and arinate; and the pistillate of five concave ovate fleshy divisions; the ovary is unequally winged; the placentas double. The flowers are produced late in winter and spring.

B. SAUNDERSONII: a neat, erect, branching hybrid, of suffruticose habit. It has bright unequal-sided, ovate-acuminate leaves, and numerous terminal and axillary pedunculate clusters of richly-shaded rosy-crimson blossoms, produced

throughout the winter and spring months. It is one of the most desirable kinds for winter embellishment on account of its succession of bloom, and is well adapted for warm conservatories.

B. FUCHSOIDES: a well-known and universally-admired species, growing two or three feet or more in height, neat and densely branched in habit, inclining to a pyramidal outline. This beautiful species is one of the tallest in the genus, and may be recognized by its thickly-set, comparatively-small, semi-ovate, oblique, sub-falcate, serrate leaves, and numerous dropping cymes of brilliant scarlet blossoms, which, under suitable treatment, may be produced on successional plants, throughout the whole year, but are more naturally produced during the winter and early spring months.

This species, on account of the facility with which it may be made to form plants of standard or bush-like habit, from three to seven feet in height, is one of the most valuable for the decoration of lofty conservatories and spacious drawing-room entrances; and its comparative hardiness, which enables it to endure a much lower temperature than most other species, as well as its densely-branched habit, are characteristic of its fitness for these positions.

B. INSIGNIS: one of the most useful species, an old but favorite plant, growing from one to four or five feet in height; neat, erect, and branching in habit; and, by its habitual tendency to flower while of small size, well adapted for pot culture. It has glossy, half-cordate acuminate, angular-lobed, serrated leaves; and numerous large terminal, pendent clusters of elegant semi-transparent rosy-tinted blossoms. A free and vigorous-growing plant, blooming profusely through the mid-winter months, it is admirably adapted for decorative purposes during that period. It is able to endure the moderate temperature of a close greenhouse, or frame, for a considerable time after its spring or summer-made growth is completed, until returned to the warmer house for the expansion of its bloom, so that it becomes one of the most valuable plants yet known for general decorative purposes, retaining its freshness too, for a much longer period than any other plants of this class. When screened from currents of cold

air, and barely protected from the influence of frost, a well-grown specimen of this kind has been preserved as an elegant window screen, in a sitting-room occasionally inhabited, without any change of position, winter or summer, for a period of four or five years.

B. PARVIFLORA: a remarkably neat, shrubby species, forming a dwarf, erect, compact, and densely-branched bush, six to twelve or eighteen inches in height; well suited for small pots. It has numerous small, unequally-lobed leaves, succeeded by a profusion of white blossoms in mid-winter. Young, vigorous plants of spring and summer growth from cuttings, restricted to *growth* alone by uniformly pinching off the premature flower buds until the late summer months, will bloom abundantly at a period when flowering plants are specially valuable for portable flower-baskets and bouquets. The comparatively diminutive size at which this species is found to bloom, renders it a charming little object for small vases, or for groups, in which its blossoms of snowy whiteness, standing out in relief against a darker back-ground, make it especially valuable for evening decoration, or drawing-room embellishment.

B. COCCINEA: a winter and early spring-flowering species, one to two feet or more in height; stout, firm, branching in habit; with succulent, bronzy-tinted, obliquely-ovate leaves, and somewhat drooping clusters of bright scarlet blossoms, borne principally during the early spring months. It thus forms a useful succession plant to *B. insignis*.

B. MANICATA: a large well-known species, one to two feet in height when in flower; having short, gross stems supporting large, spreading, bright green, oblique-sided, heart-shaped leaves, with sharp unequal-toothed lobes. In large plants the leaves themselves form a bold and distinctly-featured object, but it is as a winter-flowerer that the plants present the most striking appearance. The numerous, erect, branching cymose flower-scapes rising above the foliage, and unfolding hundreds of small, bright, rosy-tinted blossoms, which, seen in contrast with diversified foliage, are very elegant and effective. The leaf-stalks of this plant towards their upper end are furnished with crimson, rough-like, reversed-fringes,

terminating in hair-like projections. The principal veins of the leaves are also set with similar fringe-like appendages.

B. NITIDA: an ornamental, erect-growing, sparingly-branched species, one to three feet high, with large, shining-green, oblique-sided, ovate-notched leaves, and large conspicuous clusters of beautiful blush-white, rosy-tinted blossoms, in the early spring months.

B. NITIDA COCCINEA: a variety somewhat smaller than the foregoing, of a more freely-branching habit, with smaller ovate-acuminate leaves, and more numerous bunches of blossoms, which are suffused with a rich rosy-crimson tint.

B. HYDROCOTYLIFOLIO-MANICATA: a dwarf hybrid, growing from a foot to a foot and a half high, having short, spreading, fleshy stems, and large, roundish-oblong leaves, dark green above, and richly-suffused with reddish-crimson on the under side, the leaf stalks salmon-red, and surfaced with the rudimentary or undeveloped crimson, fringe-like scales. The blossoms, which are produced in profusion, are of a rich rosy-tinted crimson, and, in well-grown specimens, are exceedingly beautiful.

B. MINIATA: a neat, shrubby, branching variety, growing one to three feet or more in height, the stems furnished with thickly-set, small, oblique, ovate-lanceolate leaves, and branching clusters of flowers of a rich salmon-tinted orange color; they are produced in mid-winter and spring, and plants of large growth are admirably adapted for conservatory decoration.

To this list we add:—

B. VERSCHAFFELTII: a large robust growing species of the general habit of *manicata*, with large thick dark green leaves, not fringed as in that species. The flower stems are one to two feet high, rising above the foliage, branching, and profusely covered with large bright rosy lilac blossoms, forming a highly ornamental and elegant object for several weeks.

As a guide to amateurs who have limited space we would recommend *B. fuchsoides*, *rosea carminata*, *manicata*, *nitida*, *parviflora* and *Verschafeltii*, as combining the most merit among the several kinds.

THUNBERGIA LAURIFOLIA.

BY THE EDITOR.

THE Thunbergias are all beautiful climbing plants. *T. chrysops*, introduced some years ago, was a very elegant species, but on account of its rather difficult management it soon disappeared from our collections. *T. alata* and its several varieties are favorite garden flowers, blooming abundantly all summer, and even when brought into a warm house continue to display their pretty yellow or orange-colored blossoms.

But for indoor culture none of them equal the new and truly beautiful *T. laurifolia*, (FIG. 26,) with its large smooth



26. THUNBERGIA LAURIFOLIA.

glossy laurel-shaped leaves, and its very large trumpet-shaped intense blue flowers two to three inches in diameter. These begin to open in November and continue to expand nearly all winter, when the plants are placed in a suitable house. They appear in clusters of two or three or more flowers and remain expanded several days.

The treatment of the plants is very simple. They are easily raised from cuttings in the months of March or April, and when well rooted they should be potted off in a light rich soil of well rotted leaves, peat and sand. They should have a warm situation either in the hothouse or hotbed, till well established, when they should be shifted and removed to the greenhouse. During the summer they will need no other attention than rather liberal watering; towards autumn they will need their last shift into the flowering pots, which should be about ten inches in diameter, using the same soil above directed. A round wire trellis is the neatest form of training; to this the shoots should be regularly tied as they advance in growth. As soon as the weather becomes cool the plants should be removed to the hothouse or the warmest part of the greenhouse, where the flowers will soon begin to expand. A temperature of 70 to 80° will answer, though it grows more rapidly when it exceeds this. During the period of blooming the supply of water should be increased, particularly if the growth is vigorous.

Where it is convenient to train the plant to the back wall or a column, by placing it in a very large pot or tub it grows with great rapidity and blooms in profusion.

After the season of flowering is past the plants should be allowed to rest awhile, watering sparingly until May or June, when they should be shaken out of the old soil, repotted, pruned in, started into growth, and treated as before directed for young plants.

We commend this *Thunbergia* to all cultivators who can give it the requisite temperature during the winter season. An ordinary greenhouse is rather too cool; a warm grapery, forcing house, or hothouse, develops it in perfection.

General Notices.

STRIKING CUTTINGS IN AUTUMN.—AN EASY WAY OF PROPAGATING ROSES.—In a communication which appears in the *Journal de la Société Imperiale et Centrale d'Horticulture*, from M. Varangot, of Melun (Seine et Marne), the author gives, in the first place, an account of the usual mode

of propagating roses in France, and then reports in detail the plan which he himself successfully practices.

It is the custom, says M. Varangot, of those who propagate roses to be grown on their own roots, to form the cuttings before the plants make their spring growth, inserting them either under glass or out of doors, in a bed dug out to the depth of eight or nine inches and filled up with prepared soil, leaving only one eye of the cutting above ground. This mode of proceeding answers very well for Bengals, Teas, Noisettes, and Bourbons, but it is not so successful in the case of the Hybrid Perpetuals and other hard-wooded kinds.

Growers of roses on their own roots generally make the cuttings whilst the shoots are in leaf, and as soon as the wood is well ripened, during the time of, or after flowering, especially in the case of new varieties. The cutting pots are plunged in a hotbed among tan or sawdust. The bed is made up as near the glass as possible, and the cuttings are covered with bell or hand-glasses. They are inspected daily; to prevent damping off, the glasses are wiped, the air is renewed, water is given when necessary, and shading is afforded from strong sun, but otherwise light is freely admitted.

To save trouble the glass is sometimes white-washed; but this causes the plant to draw and occasionally to die off. Nevertheless under such circumstances many of the most easily propagated varieties are struck.

Others take the cuttings after flowering, and before the second flow of sap (which usually takes place in August), choosing the young shoots produced in spring, and strike them, without the aid of bottom-heat, under cloches or frames in a shady situation on a bed of soil prepared for the purpose. They make the cuttings in the same way as in propagating in spring, retaining some portions of the leaves, usually the first pair of leaflets at the base of the leaf-stalk. This mode is partially successful as regards Bourbons, Noisettes, and Tea roses; but it is unsatisfactory in its results when applied to Perpetuals and other hybrids with hard wood.

In my autumn practice I have not only been successful with the varieties which are the most difficult to propagate, but I have even found that there is an advantage in striking cuttings in autumn; for kinds may be thus preserved which are liable to be killed down by frost, so that no cuttings could be obtained from them in spring; as, for instance, Teas and others with tender wood, which are often killed to the stalk in severe winters. The mode of proceeding which I have adopted involves but little trouble. In September or October, when the young wood is well ripened, I take off my cuttings and cut them in the usual manner in two or three eyes, according to the distance which these are apart, taking care at the same time to retain a portion of the principal leaf-stalk and some of the stalks of the first leaflets. I then put them singly in small cutting pots or in pans, using plenty of drainage and filling up with peat, or with a compost of sand and leaf-mould. I plant with a small dibber, pressing the soil firmly to the base of the cutting. I then water, and plunge the pots to half their depth on a bed sloping about six inches, and well exposed to the sun; then I cover with hand-glasses. In a fortnight or three weeks the cuttings will have

callused and emitted some rootlets. At this season they do not succeed well in the shade, especially if put in near evergreens. An old melon bed is very suitable, as it does not afford too much moisture. Shading should be attended to for some time, as the autumn sun has still great power. At the end of a fortnight air must be given by raising the edges of the hand-glass on a small pot.

When frost sets in the glasses are kept perfectly close, and leaves put round almost as high as the tops of the hand-glasses. Shading is not required from November till March; during which period the cuttings are left to themselves; nevertheless it is well to give air in favorable weather, and to stir the soil occasionally. By April or May the pots will be filled with roots, even in the case of the most difficult varieties to strike. The young plants are now slightly shaded, and gradually inured more and more to air and sun. When this has been effected, all that is to be done is to take off the hand-glasses, remove the cuttings to another spot, cut off the points of the young shoots, and pinch off the flower buds, in order that the plants may gain strength and throw out branches. The pots are then plunged in a bed in the open, air, advantage being taken of mild weather to repot. In June all those which have been struck in the same pan are separated, so as to preserve as far as possible a ball to each, potted singly and plunged to half the depth of the pots; they require to be shaded for a short time, but they soon begin to grow, and will come into flower in the end of the season. They will then be well established plants suitable for sale or for planting out.

This mode of proceeding requires less time and trouble, and is less expensive than where artificial heat is employed.—(*Gard. Chron.*)

PROPAGATING STRAWBERRIES.—Whenever I wish to make a new strawberry bed, I allow the old bed to run into a mass. Then, at anytime during the autumn or early spring, I line strips about seven inches wide and twenty inches apart through the length of it, and cut them into squares. These squares I take up with a spade, about three inches deep, and set them eighteen inches apart in furrows previously made two feet apart in a new bed. As the roots are not disturbed, they bear a full crop the first season, and this pays well for the heavy labor of removing so much earth. I make no account of the large number of roots required, since they spread so rapidly as to cover the ground in a single season, even when runners are kept back till after fruiting. The trenches made in the old bed are filled with rich earth and manure, and the bed is soon covered with plants again, when other trenches may be made and filled, thus renewing the whole bed by degrees, as occasion requires.—(*Gard. Chron.*)

THE ALGERINE LETTUCE.—This lettuce, the origin of which is unknown to me, appears not to be so much cultivated as it deserves, although it may be highly recommended for growing in frames. The following is the mode in which I cultivate it: I sow in the beginning of September, prick out in the end of the same month in a cold frame, and give air; and in November

and December I have lettuces very well hearted, requiring no other care than covering the sashes in severe frost. I can also have lettuce in January by pricking out in the middle of October. For wintering under bell-glasses, like the *Laitue Gotte*, it must be sown from the fifteenth to the twentieth of October, and pricked out when it has made two leaves. This lettuce is not so liable to injury from frost as the *Laitue Gotte*. After winter I plant it under bell-glasses, but not on beds, merely using vegetable mould. I place four plants under a bell-glass. When they begin to heart air must be given, and the bell-glasses should even be taken off if it does not freeze sharply. If the Algerine lettuce is sown in January under glass in a cold frame and pricked out in a southern aspect as soon as the weather is favorable, good lettuce may be had fit for use from the beginning of to the middle of May. The good qualities of this lettuce are so well appreciated by those who know it that they prefer it to the *Laitue Gotte*, and substitute it for that sort. I consider it an excellent variety, but it is too small for summer, and accordingly I do not grow it at that season.—(*Dubois in Jour. de la Soc. Imp.*)

ISABELLA GRAY AND OTHER YELLOW ROSES.—I have had a nice plant of *Isabella Gray* for three years, and have never had the sign of a flower-bud. With three tiles placed over its roots it wintered well. I have now replanted it where it will get sun earlier in the day against another south wall. In the spring I mean to pot it and try it in that way, as, by confining its roots, it may run less to roots and more to flowers. My friend, Mr. May, of the National Provincial Bank, Blanford, flowered it in a pot in his conservatory about three years ago, and told me that it was a "gem;" but I have forgotten to ask him further about it. Probably, little bushy plants in eight-inch pots, placed in the garden on the ground where the sun comes with the greatest power, would be the likeliest way to succeed with it out of doors. It is a South Carolinian, and doubtless requires more sun than we have had for the last two years. My one tree of *Solfaterre*, fourteen trees of *Triomphe de Rennes*, and twenty-six trees of *Gloire de Dijon*, are always in bloom, and are noble roses. *Triomphe de Rennes* I consider to be the A 1 for quality of all yellow roses, except you can grow *Smithii* and the *Cloth of Gold* "first-rate." For general accomplishments, *Gloire de Dijon* is the A 1. It has more good points even than *Geant des Batailles*. *Celine Forestier* is a strong-growing peculiar-leaved nice yellow rose, with hardy constitution, but it has not hitherto been so efflorescent as the three kinds I depend upon, and which have never failed me for singles, trebles, or both at Exhibitions (7) beginning the thirteenth of June and ending September 11; and more, they are hung with noble flowers now, and will continue so till winter sets in. A hard and early one we shall have, as the robins began their plaintive notes this year in August. Relying on their augury I have put all my pot roses into the frames, and banked up my strong manetti rose lines like potatoes. As soon as I apprehend zero's approach everything will be tied up with straw.—(*Gard. Chron.*)

PHLOXES AS POT PLANTS.—We have already alluded to the phloxes exhibited the other day at South Kensington, as affording promise that this noble herbaceous plant may become an object of exhibition, capable of holding its own in our flower shows, and of assisting to impart something like variety to these autumnal floral gatherings now mainly furnished by the formal and lumpish though highly-colored dahlia. The exhibition of phloxes as growing plants cultivated in pots being rather a novel feature, we are desirous of inviting attention to such remarks upon those produced on the occasion referred to, as their appearance suggested, while they remain fresh in the memory of exhibitor and visitors.

We cannot suppose that either of the collections presented for competition on the eleventh, though respectable in their aspect, were at all equal to what the phlox is capable of being made under this mode of culture. Their defects, as it appeared to us, were, that while one collection was allowed to become too tall, and was to this extent unsightly, the others had been so manipulated as to have lost the fine terminal flower heads which are a characteristic of this family of plants, and consequently presented nothing but a few weak laterals, which were ineffective for display.

Now in turning to account the experience to be gained in the actual condition of the plants exhibited, we must not lose sight of the natural habit of the herbaceous phloxes, which is to produce several erect stems, each terminated by a large branched and in the finer sorts more or less compactly arranged panicle of flowers. The great beauty of the plant consists in the mass of color, varied in each individual kind, presented in these cone-formed heads of flowers. This feature cannot be dispensed with in the phlox, without greatly detracting from its beauty. Destroy it and the inflorescence becomes meagre and broken up into little sprays; such as indeed it was in several of the plants shown on the occasion referred to. Plants thus managed are not effective even though the varieties may be amongst the finest which are grown. It is equally to be borne in mind on the other hand, that for exhibition purposes the stems must be dwarfed. Health and vigor and profusion of bloom can readily be secured by liberal cultivation, but in addition to these we must have dwarfness, and we must have the terminal paniculate inflorescence, and not mere laterals. The problem for cultivators to solve, is how these results are to be combined. That the combination may be secured does not appear to admit of a reasonable doubt.

Reverting then for a moment to the plants as they appeared at the show on the eleventh, it seems to us perfectly clear that the collection No. one, in which the stems had been allowed to grow unchecked to their natural height, was defective in this particular, notwithstanding its profuse display of flowers. We say nothing here as to the varieties exhibited in the several groups, as our object at this point is to invite attention especially to the treatment of the plants and not to the varieties. The best mode of treatment being ascertained, of course it will be as applicable to the finer sorts as to the older and inferior ones. No. one, as we believe, received too little manipulation: Nos. two and three were, in our opinion, defective from

having received too much; they had been topped at too late a stage of their growth, and at too great a distance from the root, and in this way, while the terminal inflorescence was altogether lost, the lateral growth had not had time or strength to replace it in an effective way. It is between these extremes that the happy medium is to be sought for, and although a little experimental practice may be requisite to fix the exact data, it will probably not be far wrong, if the stems are topped when about six inches high, because the shoots then produced will have more of the character of the main or principal stem, and will produce the desired mass of flowers. Whether or not at this stage a sufficient number of "breaks" can be secured to form a well-furnished plant, experience must determine; at any rate we can hardly suppose the result will be less than that of topping the stems when from a foot to a foot and a half in height, and leaving nothing but weak lateral shoots to furnish the specimen. We notice in some of the sorts a disposition to throw up shorter blooming shoots, as a kind of second growth from the roots, and perhaps this peculiarity, if not accidental, may lead to a mode of treatment applicable to such varieties, namely, to cut away the main stems nearly to the base, early in the summer, trusting to a second weaker and consequently less elongated growth for the formation of the specimens. We have been led to form so high an opinion of the capabilities of the plant, that we shall be glad to see the question of treatment discussed in our columns.

Whatever plan may ultimately be found best in regard to the details of cultivation, the inferior varieties ought to be altogether discarded, at least for the purposes of pot culture and exhibition, now that there exist so many fine varieties of sterling merit. Some of these are really exquisite in the masses of rich coloring they present. What, for example, can be more beautiful than the bright rosy crimson panicles of *Liervallii*, a dwarf-habited variety, and the brightest and richest colored of all the sorts yet produced. Again, among deep-rosy purples, or those unnamed tints between purple and crimson, *Madame Lierval* and *Dr. Boissudval*, the latter dwarf in habit, are remarkable for richness of effect, whilst a brighter and lighter shade of this class of colors is well represented in the glorious panicles of *Mr. Rollison* and *Souvenir d'un Ami*, in *Alphonse Robin*, which is a very showy variety with a deep-crimson eye, and in *Le Gamin de Paris*, which has a telling maroon eye. There are, besides, fine rose-colored sorts, in which the eye or centre is very conspicuously marked, among which *Mr. Punch*, a light-rose of purple form, a free bloomer and having a bright-crimson eye, is perhaps the best, and *President Payden*, a deeper rose with an evident but less distinctly marked eye, is scarcely inferior to it. *Triomphe de Twickel* is a fine rose and white-striped sort, very pleasing in its marking as well as showy in character, while *Madame Vilmorin* is a light-pinkish rose; *Rosea alba* is a clear rosy-lilac, with a distinct white centre; and *Boule de Neige* is a good white of dwarfish habit; last, but not least, there is a whole bevy of fair ones, which are charmingly delicate in complexion, and have soft-hued and most expressive eyes. Among these, the most fastidious could but admire such a one as *Mrs. Standish*, whose white flowers

have a rosy-crimson eye; or Madame Fontaine, whose eye is of a purplish hue; or Madame Marceau and Madame Moisson, both blushing whites with an eye of rosy purple. Now, all these varieties are of fine quality, distinct in character, choice in color, and in every way desirable; and such a collection would afford capital materials for an essay on the pot-cultivation of phloxes.

It will be found that the kinds we have here indicated, and indeed all the finer sorts now in cultivation, belong to the group which has sprung from *Phlox decussata*, sturdy, vigorous-habited sorts, with broad foliage, and blooming late in summer onward till the autumn. Another race originated from *P. suffruticosa* and *P. pyramidalis*, and generally known as summer-flowering phloxes, are not generally cultivable, at least in a satisfactory way, in the neighborhood of London, though, as many of the fine Scottish varieties belong to this group, we suppose the more northerly latitude of Scotland is more congenial to them.—(*Gard. Chron.*)

CULTIVATION OF HYACINTHS.—There are one or two points both as to the selection and management of the hyacinth, the most important of the bulbous group, to which it may be useful to direct the attention of amateur cultivators. The first point is as to the class of varieties to be grown. No doubt there is a prevalent feeling, under the influence of which preference is given to double over single flowers generally, and under this influence the inexperienced cultivator might be led to prefer the double before the single hyacinth. Without denying the beauty of some of the double kinds, it may nevertheless be asserted in general terms that the single varieties are the preferable ones for ordinary decorative purposes. They are more vigorous in constitution than the double-flowered sorts, often of brighter hues, and generally they produce more compact and massive flower-spikes, so that of the two groups they are really the more ornamental in the majority of instances, whilst for culture in glasses they are decidedly and at all times preferable.

Another point of some importance where effect only is the object in view, is to make a good selection of a few distinct and decided colors rather than to multiply shades and varieties, which after all the trouble that may be taken with them, will not yield half so satisfactory a result as the fewer decided colors. Especially it is unnecessary for mere decorative purposes to have recourse to high-priced varieties, the value of which in many cases is merely nominal, and dependent rather upon a limited supply than upon their intrinsic merit. There are of course among these, as among other flowers, new and also improved varieties to be met with; indeed there has been of late years a marked advance in the quality of new kinds of hyacinths, so that those who seek for novelty will here find a fair share of encouragement to obtain them; but the point we would particularly impress on our inexperienced readers is this, that such varieties, novel and high-priced as they may be, will afford them no advantage, looking at the matter as a mere question of ornamental display. The interest to be elicited from the cultivation of novelties such as these will be dependent on other sources.

There are few brighter and more beautiful spring flowers than the hyacinth, whether grown in forcing houses for the decoration of the conservatory and drawing-room, or placed in glasses of water, or in bowls or vases of moss, and treated throughout as household plants, or grouped in the beds of the flower garden. Few flowers, indeed, prove so brilliant and pleasing as those in the latter situation, to which we may more specially refer hereafter. At present it may be useful to many readers who are their own cultivators if we briefly recapitulate some of the prominent features of in-door culture.

First as to glasses. Those known, as Tye's hyacinth-glasses are much to be preferred, on account of their appearance, to those of the older form. They may be had of plain colors or ornamented, and should be accompanied by the wire supports for the flower spikes, now commonly provided. The bulbs should be firm, clear, and evenly formed, not over large (the different sorts vary considerably in size) and perfectly sound. The glasses should be nearly filled with soft water, just so that when the bulb is placed in its position it may all but touch the surface of the water. After planting they should be set away in a close dark place, where the temperature is moderate and equable, and the atmosphere at least not parching; no place is better than an ordinary cellar. They remain in this position for a month or six weeks until roots have become freely developed, and then may be removed to a cool room, and gradually inured to bear exposure to the full light. The glasses are to be kept filled up with water as it wastes; and the water is not to be used at a temperature below that of the room, and need not be changed unless it becomes offensive, which is seldom the case. A cool room, where they can be fully exposed to the light, is the best place for them after the leaves are put forth, but in cold weather they must be removed from the window at night or they will be liable to sustain an injurious check if the temperature falls very low. A portion may be accelerated by being kept in a warm living room after they begin to grow.

When cultivated in bowls or vases, the vessel may be filled either with clean damped moss or moistened sand, the former being pressed moderately firm. In either case the bulbs should be placed so as to leave about one third of their upper surface exposed. Like those in glasses they should be set in a dark dampish place to root, before being exposed to light or stimulated by heat. The colors too should be tastefully grouped, and the varieties selected with reference to their vigor, so that the tallest may occupy the centre of the group.

By another plan it has been recommended to place the bulbs in a flat dish of porcelain, glass, or other material, in which about half an inch of water is first put. Under such conditions the roots are sure to spread horizontally and to clasp each other so as to form a mutual support. Shallow vessels of ordinary pottery ware might be planted in this way, and afterwards set into ornamental dishes, the coarser material being hidden by a covering of moss.

After all, however, there is no mode of culture within doors which is so thoroughly satisfactory as pot culture, and we conclude this notice with the

following very judicious summary of this method of cultivation from the Bulb Catalogue of Mr. W. Paul, of Waltham Cross, who has been a successful exhibitor, and herein explains the ground of his success:—

“Hyacinths in pots may be potted from September to Christmas, in order to secure a succession of bloom. October is perhaps the best time for potting the mass. Fill the pots with a compost of turfy loam, with a plentiful admixture of sand and well-decayed manure. Five and six-inch pots are the sizes ordinarily used; but I prefer a deeper pot, with more upright sizes, and would recommend such when it can be procured. In potting, one third of the bulb should be left above the surface of the soil, and the pots should be placed on the level ground, out of doors, having previously taken precautions to prevent the ingress of worms through the holes at the bottom of the pots. Cover the pots with six inches of cinder ashes, coarse sand, or any porous material, leaving them so covered for at least a month, then removing them at intervals as required to a cold frame or forcing-house. As the leaves expand, place the pots close to the glass; give plenty of air and water, and protect from frost”—(*Gard. Chron.*)

THE TREES OF PARIS.—In my early days one of the most beautiful features of the French capital consisted in the trees which adorned the Champs Elysées, the Tuileries, Luxembourg, Jardin des Plantes, and the Boulevards. My recollections of them 45 years back are of fine healthy trees, chiefly elms in the Boulevards and Champs Elysées, horse chestnuts and limes in the Tuileries, retaining their leaves through the summer, and suffering comparatively little from the ill usage to which they are always exposed in crowded cities. The first great blow they received was the levelling of those of the Boulevards for the barricades of 1830, and although replanted very soon after, they are far from showing that approach to their former beauty which a 30 years' growth might have led one to expect. Some years later the larger elms that remained began to show signs of rapid decay; the limes were gradually observed to turn brown early each summer, and, as well as the horse chestnuts, to lose their leaves long before the regular period; and, whatever be the cause, whether an unusual multiplication of insects, the suffering from a worn-out soil, or, as the Parisians generally believe, the deterioration of the atmosphere by the increase of gas and coal smoke, Parisian trees, with but few exceptions, are now usually by the middle of September almost as bare of foliage as in the depth of winter. Experiments have been tried on a large scale with a view to remedy the evil, but without success. Paring off the bark of old worm-eaten elms, and swathing their stems, if it had any effect, seems rather to have hastened their death. Swathing up the young ones and placing a funnel at the top for receiving water, by means of which the stems were kept constantly moist, although it did not much injure healthy trees, certainly did not benefit them; and all these processes, from which so much was expected a few years since, have now been abandoned. The dearly-bought experience of the last few years has only confirmed what might have been predicted, that the success of trees planted in cities like Paris or London must depend in the first place on the selection of healthy individuals of the

species best suited to resist the deleterious effects of a vitiated atmosphere, and the injuries to which they are exposed from a crowded population, and to accommodate themselves to a hard, compact, well-trodden soil ; and secondly, on the care taken in their removal from their nurseries in their planting, and in their subsequent treatment and protection. It is to be hoped that in the extensive plantations still going on the authorities may so far profit by the lessons they have received, that Paris may in some years be as much embellished by her trees as she already is by her public gardens.

Of the several trees which have been tried in the boulevards, quays, and public walks of Paris, the first in point of merit is undoubtedly the common plane. It is of all the most healthy and rapid in growth, it is one of the earliest to come into leaf, and now in the end of September it still retains its rich green foliage in full vigor. It can easily be trained to a tall straight trunk, the head always assumes a handsome form, and, by the annual casting of its bark, the stem is not so blackened by soot as are other trees even in Paris. I have seen it thrive equally well in the climates of London and Paris and in those of Roussillon, Lower Languedoc, and Provence, in the hard dry compact soils of public roads and walks and on the loose deep alluvial banks of rivers. The improved aspect it has given to some southern towns, such as Montpellier and Perpignan, replacing as it has done the aïlanthus, broussonetia, &c., is very striking, and when once properly planted it requires very little after-care. There are a few young ones indeed on some of the quays at Paris which look poor and sickly, but these, when I saw them fresh planted two or three years ago, were then long slender sticks which had evidently been left too long in crowded nurseries. All those that were healthy when planted show abundant signs of a rapid and vigorous growth. The species was long known on the Continent as well as in England, under the false name of the Occidental Plane, but has since been shown to be the *Platanus acerifolia* of Willdenow. It is believed to be a native of the Levant, and there is a tradition, which may be correct, that it is also a seedling race originally sprung from the same stock as the *P. orientalis*. The latter tree, the true Eastern plane, with deeper-cut leaves, is as hardy as the *P. acerifolia*, and when grown alone where it can spread freely is much more picturesquely beautiful, but on account of this spreading habit it is not so well suited for avenues and promenades. I have observed, however, a few trees with the erect habit of *P. acerifolia*, but with a somewhat deeper cut leaf, which would seem to support the opinion of a common origin of the two.

Ailanthus glandulosus has been much vaunted by some French planters, and used to be a great favorite in the south for avenues and roadsides, on account of its tall straight stem and compact head. It is quite hardy, it flourishes in the closest parts of Paris, and retains its foliage till autumn, but it is inferior in beauty to the plane, and comes out later into leaf. When in flower it diffuses a powerfully disagreeable sickening scent, and in a rich soil its numerous suckers are often a nuisance.

The sycamore, *Acer pseudoplatanus*, appears to retain its foliage in Paris as late and as perfectly as the plane, and in shape it is equally well suited for avenues, but it is of much slower growth, and by the side of that tree

its foliage looks dingy and heavy, for the surface of the leaves not being so smooth, it retains more readily the soot of the atmosphere.

The common acacia, *Robinia pseudacacia*, has a light green elegant foliage, still in full vigor in the end of September, and it does not object to a hard close soil; but its stem is seldom straight and regular enough when old to be suitable for avenues, and when exposed to wind it proves very brittle.

The horse chestnut has long been much admired by Parisians, and, judging from the numbers recently planted on the new Boulevards, would still seem to be in high favor. Nothing can be more beautiful than an avenue of this erect well-formed tree when in full flower in spring, and it seems to grow well in the Parisian soil. The large ones planted four or five years ago in the Place de la Bourse have taken well, notwithstanding their size and the swathing and other tricks played with them. But when summer droughts come on the tree loses its leaves, so far as the influence of the vitiated atmosphere and dry hardened soil extends. In the Bois de Boulogne the foliage is still healthy and vigorous, but within the town, in the Tuileries, Champs Elysées, &c., not a green leaf is to be seen, excepting on three or four young trees, which, owing probably to the season at which they were planted, are at this moment in full flower.

The lime trees of the Tuileries, the Jardin des Plantes, and the Luxembourg, used to be as ornamental there as they still are in so many German towns, but from some cause which is not well explained, their foliage throughout Paris now turns every year of a rusty brown before the end of July, and by September, the trees are nearly as bare as in winter.

The elm is still frequently planted, and there remain a few good ones among the larger trees of the Champs Elysées, but, generally speaking, the old ones are dead or dying in spite of the scraping, swathing, and plastering they have undergone, and the younger ones do not look as if they would ever attain the beauty of their predecessors, such as I recollect them after the peace of 1815. They certainly dislike either the present atmosphere of Paris or the treatment they are subjected to. Oaks have been recently tried on some of the quays, but without success. Neither Conifers nor any evergreen trees have been attempted.

In the care bestowed on the selection of individual trees for planting, in the operation of planting itself, and in the subsequent treatment of planted trees, the French appear to be still so far behind ourselves that it is useless to enter into particulars. Neither the old practice still frequently adhered to, of cutting the roots short and cutting off the heads to counterbalance the loss of roots, nor the more recent one of swathing the stems, produce any results which might tempt us to introduce them, and from the aspect of the trees most recently planted it would seem that both processes are now being abandoned in Paris.—(*Gard. Chron.*)

CANNAS AND CALADIUMS AS BEDDING PLANTS.—Among the greatest improvements in the Paris gardens observable within the last two or three years, especially at this time of year, are the use made of cannas, caladiums, and other large-leaved plants, either in distinct round or oval clumps,

or in the tall centres of the flower borders, and the introduction of some autumnal flowering plants, under shrubs or perennials, either in raised beds or borders, or surrounding the clumps of shrubs. In the cannas and caladiums, considerable attention has been given to the ascertaining which species or varieties are the best adapted for planting out as the hardiest, the easiest to cultivate in large quantities, the handsomest and the least liable to tear with wind. With this view, M. Barillet has tried above 80 cannas, of which he showed us as many square patches in a long row in the reserve garden. Of this number he has selected about a dozen for general cultivation, and intends to reject the others. Those which have hitherto been found the best suited for clumps are among the larger kinds, *C. annæi* and *C. Warczewiczoides* with red flowers; *C. liliiflora*, rather tender, but the only one with white flowers; and *C. zebrina*, with dark-colored foliage, far preferable to the more common *C. discolor*; *C. indica* is one of the best of the middle-sized ones, and *C. Warczewiczii* among the smaller ones. A very handsome clump in Lamartine's garden, adjoining La Muette, had *C. annæi* in the centre 9 to 10 feet high, surrounded by *C. indica* with *C. Warczewiczii* on the outside, but in general the clumps of a single kind, closely planted, with the most vigorous and tallest plants in the centre, and from 6 to 12 or 15 feet diameter, according to the height of the variety, appeared to us to have the best effect. They are also much improved by a ring of some dense short plant close round the base so as to hide the roots. Some flowering plant of 9 inches to a foot in height is generally selected, but it appeared to us that a ring of bright flowers round the base took off from the general effect as a bed of foliage, and when the cannas are in flower made their flowers look poor. A very good result was produced in a clump in the Luxembourg garden by a close ring of the common striped grass kept to the uniform height of rather less than a foot. The roots of these cannas are taken up as soon as the first frosts attack their leaves, and stored for the winter in a perfectly dry cellar. Very early in spring they are started in frames or pits, and divided for propagation, and planted out in the clumps in May. There are a very few of the tenderer kinds which require being kept in vegetation during the winter, but these are on that account rejected from general cultivation.

A considerable number of caladiums have been tried, but there are none to equal the *C. esculentum*, of which there are several large raised beds in the Champs Elysées, Monceaux, and Bois de Boulogne. The peltate leaves, of which we measured several more than a yard in length, and which M. Barillet tells us often attain a yard and a half, hang elegantly from their erect petioles, so as to wave in the wind without tearing. It is true that in some of the clumps in the Champs Elysées they are ragged on the outer side of the bed, but that is owing to their being too close to the walk and injured by the passers by; on the inner side, next to the lawn, although equally exposed to the wind, they are quite entire. *C. violaceum* is also a handsome one; but the species with erect leaves are generally inferior, either as showing too much stem, or as very liable to tear. All caladiums require being kept in-doors, and more or less in vegetation during the winter.—(*Gard. Chron.*)

STRIKING CUTTINGS OF ROSES.—I have been in the habit for some years of striking roses in what appears to me such a much more simple way than is described in your paper, that I send you an account of the method. At any time of the year when they are to be procured, I take cuttings of any sorts of roses I want to propagate (moss included) and cut the half-ripened wood into lengths of two eyes. I remove the bottom leaf, leaving the top one to rest on the surface of the bed, and nourish the cutting, whilst it forms its roots. The hotbed (a very slight one) in which I plant the cutting, is made in the following manner: on the top of a little dung, just enough to give a slight bottom heat, I place six inches of earth, moistened to the consistency of mortar, then cover with two inches of silver sand. I have occasionally struck every cutting; but 90 out of 100 is an average result.—(*Gard. Chron.*)

Gossip of the Month.

ABRONIA UMBELLATA.—We were quite surprised at the notice in the *Gardeners' Monthly* respecting this pretty plant. A month or so ago it stated that it was "not yet in cultivation;" and, in answer to a correspondent, finds this was an error, as "it had been grown by parties in the Eastern States the past season, from seeds imported from Europe." Now we cannot say how long it has been enumerated in the catalogues of our seedsmen, but this we know, that, after growing it two or three years in our collection and seeing what a fine thing it was, we described and figured it in our *Magazine* for 1853, (Vol. XIX., p. 308,) *eight years* ago, and have since cultivated and recommended it to our friends. After an introduction of ten years, it seems singular to hear it has been raised from imported seeds, the past season, in the Eastern States.

TREE COTTON.—Mr. Kendall, of Maryland, has been describing the cotton tree of South America, (*Gossypum arboreum*,) which he states he discovered in the high regions of South America, and which he says may be cultivated anywhere that Indian corn will mature. He has already tried it in Maryland with perfect success. This is a very important discovery, if what he supposes is true; but we are in some doubts about the hardiness of any South American tree in our New England climate, which is very unlike that of Maryland. Tree cotton is nothing new; but a cotton tree that will stand our northern winters is. We, however, deem the subject of so much importance that we hope Mr. Kendall will distribute some of the seed or plants, that a trial may be made. Just now, when the cotton-supply question is so much discussed, and the world is looking to the South for a full stock, the existence of a plant which will yield it in the abundance Mr. Kendall affirms, in our Northern States, would be a discovery greater than has ever yet been made. Let the experiment be thoroughly tried.

CATALOGUES, &c., RECEIVED.—Wholesale Catalogue of the Cherry Hill Nurseries, West Chester, Pa., Hooper & Brother, proprietors; fall of 1861,—spring of 1862.

T. C. Maxwell & Brother's wholesale catalogue for the autumn of 1861 and spring of 1862.

Morris Nurseries, West Chester, Pa. J. L. Darlington & Co's wholesale catalogues of fruit and ornamental trees, shrubs, roses, bedding-out plants, etc.; autumn, 1861—spring, 1862.

Genesee Valley Nurseries, Rochester, N. Y. Frost & Co's wholesale catalogue of fruit and ornamental trees, shrubs, roses, &c., &c., for autumn of 1861.

Highland Nurseries. Wholesale prices of fruit and ornamental trees, stocks and shrubbery, for sale by Cowles, Roberts, & Co., Syracuse, N.Y.; fall of 1861 and spring of 1862. For dealers only.

Supplement to the Descriptive Catalogue of fruit and ornamental trees, shrubs, seedlings, roses, &c., cultivated at André Leroy's Nurseries, near the railroad station, Angers, France, 1861.

Premium Essays, 1860, on orchards, by John A. Kinnicott, of the Grove, Illinois. We shall notice these excellent essays.

Societies.

FRUIT GROWERS OF WESTERN NEW YORK.

The autumn meeting of this society was held at Rochester, on Tuesday, the 1st of October. The attendance was not large, but the show of fruit was very good, and the grapes never excelled; "about one hundred samples of native grapes were shown, many ripe, and a few varieties of excellent quality, while others showed but little improvement over our old sorts, the Isabella, Catawba, and Clinton. The Delaware was the favorite, everybody spoke in its praise"; so states the Rural New Yorker. If we recollect aright, the report not being before us, last year the Diana was the favorite, and was placed *first*. But this is no longer so. Perhaps another year some other sort will be the favorite. We fear the cultivators of that section are too fickle in their estimate of the grape. A grape that will only remain the favorite one year is hardly the grape for everybody to cultivate.

Among the subjects for discussion was the following in reference to the grape, and we copy it entire for the information of grape growers:—

I.—*What varieties of grape can be relied upon to ripen their fruit with certainty in Western New York, in open air?*

Mr. Barry thought this an important question. We have been adding new varieties for several years, and gaining experience of their qualities. The Isabella, our old standard, often fails; the Catawba seldom succeeds; and the Clinton is of inferior quality. These are our three old varieties. His experience caused him to believe that the Delaware could be relied upon in this climate. The present season has been very unfavorable,—the

wood was injured last winter, the spring was cold and backward, and the summer has not been such as could be desired for maturing the grape crop. Varieties that ripen this season must be considered well adapted to our climate, and such as will mature in unfavorable seasons and situations. The Delaware has ripened under almost all circumstances, on wall and on trellis. The Hartford Prolific is one of the first to ripen. It will always ripen here, and is hardy, though third class in quality, if compared with the Delaware, but would be considered a good grape by most people. It drops the berries somewhat when fully ripe.

Dr. Miner, of Honeoye Falls, said the Diana had ripened with him the last eight years. It was three weeks earlier than Isabella, and only a week or so later than Delaware. He never ripened Isabella on an open trellis.

H. E. Hooker did not think Diana ripens early enough to be called a reliable grape, and not much earlier than Isabella. On Diana bunches there are many green berries, but on the Delaware not an unripe berry can be found. The Delaware is so satisfactory this year that he did not feel like talking about any other variety. From a vine growing on a trellis twelve feet long and five and a half feet high, he had picked two hundred bunches. Though the clusters are small, he believed as many pounds of the Delaware could be grown on a given space as of any other good grape. Mr. Hooker was prepared to give his unqualified approbation to the Delaware. Among other good qualities it is found perfectly hardy. The Diana buds often suffer from the winter, either buried or exposed. This makes it difficult to get the trellis filled with bearing canes. The Hartford Prolific is hardy and early, but second-rate quality. Concord is early enough and hardy. These three varieties can be relied upon in Western New York.

Mr. Barry presented plates of Delaware, Rebecca, Concord, and Diana, grown on the same trellis, and under like treatment every way—all ripe but Diana. Mr. B. was satisfied that Delaware is a month earlier than Diana. Rebecca is a high-flavored grape, as good as a fine Muscat, but the foliage is rather delicate and sometimes burns.

Mr. Hoag fruited six hundred vines this year, in one plot, in an exposed situation. This is the first year of bearing. The vines were not trellised until July, but lay upon the ground to that time as they had lain all the winter. The varieties are Hartford Prolific, Perkins, Concord, Garrigues, To-Kalon, Rebecca, and Diana, and ripen in the order named. He gathered over a thousand pounds of Hartford Prolific more than two weeks since, and sold them in New York for eleven cents per pound. The berries of this variety drop from the clusters when much shaded, but not when exposed. The Perkins ripened next, and the vines were loaded down with fruit. Many thought it superior to Hartford Prolific. Concord has not proved as prolific as in other situations; had been ripe for about a week. Garrigues made a strong growth and fruited abundantly; now ripe. To-Kalon did not bear as freely as others this season; very hardy, and did not kill back a single bud. Rebecca ripened next; very superior grape, but with him a poor bearer; a slow grower at first, but soon becomes strong and vigorous. Had no Delawares in this plot, but from a trellis eight feet by four picked two hundred clusters. From another vine set out four years,

picked twenty-five pounds. It did not ripen as early as he expected, but the vines were too heavily loaded. The celebrated Taylor grape is as unripe as Isabella, and Anna is quite unripe. Northern Muscadine hardy and early, but one vine is enough for any one.

Joseph Frost said, with him Hartford Prolific was the earliest—ripe two weeks ago; Northern Muscadine next, Delaware next; Concord hardly ripe at present time; Diana not ripe. Hartford Prolific and Delaware can always be depended upon in this latitude, and the latter is as productive as any variety cultivated.

Mr. Townsend, of Lockport, never saw a better crop of grapes than on the Perkins in Lockport. It is second or third rate in quality as compared with Delaware, but better than Hartford Prolific. The bunches are very uniform in size. If he planted only two kinds, it would be the Delaware and Perkins.

C. P. Bissell, of Rochester, said the Logan, in every instance where the vines had blossomed, had fully ripened its fruit in September in the open air. A great advantage which the Logan possesses is, that as fast as the wood attains its full size during the summer, it also ripens perfectly, and is thus far prepared to withstand the winter. It is best cultivated when trained to stakes, or else upon the double-spurred system of pruning, and it thus bears profusely, and is certain to ripen its fruit. The main thing is to get a good growth, and thus have plenty of ripe wood, and you are sure of a good crop.

Mr. Downing said the foliage of the Logan is very delicate, and burns so much he could do nothing with it.

John A. Gamper, of Pennsylvania, said the Logan is the hardiest vine he has.

II.—*Is it necessary or profitable to protect the hardy varieties of grape during the winter; and if so, what is the best method of doing it?*

* Benj. Fish usually leaves his vines on trellis, but some winters they suffer.

H. N. Langworthy said the last winter was pretty severe on his vines. Those that were tied up suffered, while those that laid on the ground without any covering received no injury.

Mr. Downing has changed his opinions somewhat within the last three or four years. Covering of late years seems to be very beneficial, if not absolutely necessary. Diana, Union Village, and Hartford Prolific, were nearly killed last winter. Thought it best to cover the vines, and they would be safe and some days earlier in ripening. Prepared covering with an inch or two of earth, and the vines should be allowed to lay on the ground a week or two after uncovering before being tied to trellis.

Mr. Hooker had generally practised covering with a little earth the vines that he prized the most. Sometimes the buds rot when covered, but never so much as to be of any serious disadvantage. When vines are old, Mr. H. thought it would be somewhat difficult to lay them down.

Mr. Hoag said, the vines he had mentioned were much exposed, but had suffered no injury when laid upon the ground. Sometimes the canes rot when covered. Mr. Gamper advised binding the vines with straw, and al-

lowing them to remain on the trellis. This affords protection and prevents rotting.

Mr. Langworthy hoped vines would be obtained perfectly hardy, that would not need covering. The trouble is considerable.

Mr. Moody did not think we have or can obtain a good grape that will invariably succeed without covering. In Europe, where the climate is less severe, grapes are covered.

Mr. Gamper said, that in the north of France and Switzerland, after harvest, the stakes are pulled up, the vines laid down, and the stakes thrown upon them to keep them down. Sometimes those who give their vineyards extra care, throw a little straw upon all.

Josiah Salter, of Rochester, said, it is not always the mere covering of the grape vine in the winter, nor the dirt with which it is covered that rots the wood and buds, but some varieties do not ripen their wood nor their buds as well as others. If the wood buds are perfectly ripe before being covered, the mere covering will not injure them. Many varieties stand the winter without covering because they ripen their wood early and thoroughly. Such varieties as the Logan, Delaware, Concord, Clinton, Northern Muscadine, &c., are sure to ripen well. The Hartford Prolific, Isabella, Diana, Catawba, &c., are of strong, vigorous habit, and have a tendency to grow late in the season, and to make large, pithy wood, which rarely ripens solid and well. Those that thus fail to ripen would be often killed by our winters, whether they are covered with earth or not. The objection to covering with straw is that it harbors mice.

F. W. Lay found all the protection needed is to lay down the vines, and in the most severe weather they are covered with straw. Last winter, vines allowed to remain on trellis were much injured. The vines laid on the ground, now had ripe fruit, but the fruit on vines left on trellis was yet unripe. Mr. Lay did not consider the labor of laying down, or even covering, very serious, as he thought he could cover half an acre in a day.

Mr. Salter, in response to inquiries, presented a plate of the Ontario grape, well ripened, of about the size of Concord, or a little larger, and second or third rate as to quality.

H. T. Brooks said a friend had covered a part of his vines and left a part on trellis. The latter were injured the most—perhaps taken up too early.

Mr. Smith, of Grimsby, C.W., said he had seen grapes grown by Mr. Reid much larger. He had also seen a person who says he sold Mr. Reid the vine which he has called Ontario. It originally came from the United States. He had tasted the fruit of both vines, and thought them the same. It is a large grape, hardy, and in quality not much inferior to Isabella.

III.—*Which of the hardy grapes that ripen well is best adapted to keeping fresh during the winter?*

Mr. Hooker said the Clinton keeps the best. It keeps well until everything else is gone, and then it is pretty good. A friend kept Clinton, Isabella, Concord and Catawba, all precisely alike, and when eaten, the Clinton was the best decidedly. Concord loses its flavor; Isabella keeps pretty well, but not as well as Clinton. Delaware was represented as being a good keeper but Mr. H. never yet had enough to test the matter.

Massachusetts Horticultural Society.

Saturday, Oct. 5th, 1861.—The annual meeting for the choice of officers was held to-day—the President in the chair.

The following officers were elected :—

President—JOSEPH BRECK.

Vice Presidents—(Vacancy,) E. Wight, W. C. Strong, J. F. C. Hyde.

Treasurer—Wm. R. Austin.

Corresponding Secretary—Eben Wight.

Recording Secretary—F. Lyman Winship.

Professor of Botany and Vegetable Physiology—Asa Gray.

Professor of Zoölogy—J. W. P. Jenks.

Professor of Horticultural Chemistry—A. A. Hayes.

Committee on Fruits—J. S. Cabot, Chairman; J. F. C. Hyde, A. C. Bowditch, W. C. Strong, P. B. Hovey, E. Stone, F. Burr.

Committee on Flowers—E. S. Rand, Jr., Chairman; J. McTear, E. W. Buswell, G. W. Pratt, C. H. B. Breck, W. H. Spooner, A. Apple.

Committee on Vegetables—D. T. Curtis, Chairman; F. Winship, J. Nugent, A. Bowditch, S. H. Gibbens, B. Harrington, J. C. Hovey.

Committee on the Library—E. S. Rand, Jr., Chairman; W. H. Spooner, Jr., G. W. Pratt, R. McCleary Copeland, Librarian.

Committee on Synonyms of Fruit—M. P. Wilder, Chairman; C. M. Hovey, E. Wight, J. Stickney, and Chairman of the Committee on Fruits.

Executive Committee—The President, Chairman; J. S. Cabot, the Treasurer, M. P. Wilder, C. M. Hovey.

Committee for Establishing Premiums—Chairman of Committee on Fruits, Chairman; Chairmen of Committees on Flowers, Vegetables, and Gardens, and P. Barnes.

Committee on Publication—Corresponding Secretary, Chairman; Recording Secretary, G. W. Pratt, and Chairmen of Committees on Flowers, Fruits, Vegetables, and Gardens.

Committee on Finance—J. Stickney, Chairman; M. P. Wilder, C. O. Whitmore.

Committee on Ornamental Gardening—W. R. Austin, Chairman; W. C. Strong, H. W. Fuller, Chairmen of Committees on Fruits, Flowers, and Vegetables, E. A. Story.

The name of Mr. E. S. Rand, of Boston, headed the ticket for Vice Presidents, but the balloting resulted in a tie vote (42 each) between Mr. Rand and Mr. C. M. Hovey, although the latter was not nominated for the office. A vacancy therefore occurs in the Vice Presidents.

Oct. 26th.—Exhibited. From A. Chamberlain, Newport, R. I., fine specimens of pears from orchard-house trees in baskets and pots. The Duchess d'Angouleme weighed twenty-three ounces, and the Beurré Clairgeau, Le Curé and Easter Beurré were very large and fine, evincing Mr. C's skill in orchard-house culture.

Horticultural Operations

FOR NOVEMBER.

FRUIT DEPARTMENT.

The autumn has been one of the most favorable for many years. The first frost occurred to-day, (the 24th,) which is later by nearly three weeks than any previous year within our recollection. The ground is quite dry, trees have thoroughly ripened their wood, and there is every prospect of a fruitful year to come.

GRAPE VINES in houses intended for very early fruiting, should now have every attention. Cover the border with manure, or short hay, leaves, or seaweed, to retain the heat. Begin with light fires at first, increasing the temperature as the season advances, being at all times careful that the vines receive no check, nor be pushed too fast. Vines in greenhouses may now be cleared of all their leaves. Cold houses must now be looked after: close up on cold nights, and as soon as the frosts become severe the vines should be protected from the winter. Hardy vines may be laid down and covered, or even laid upon the ground where the snow will give them good protection.

FRUIT TREES should now be transplanted.

RASPBERRIES should be covered as soon as the weather becomes very cold.

STRAWBERRY BEDS should be cleared of large coarse weeds, and as soon as the ground freezes hard they may have a light covering for the winter. When planted in rows, the spaces should be well manured over the surface. It will greatly invigorate the plants. Plants for forcing should have just enough protection to keep them from freezing and thawing.

PEAR AND APPLE SEEDS may be sown this month, choosing a deep rich soil.

TREES AND VINES in pots should have the protection of a shed or cellar where the earth will not freeze. Those intended for early fruiting may be introduced to the vinery.

PREPARE GROUND for planting; trench in readiness for spring, and store soils and manures for the winter.

FLOWER DEPARTMENT.

AZALEAS, at this season, are nearly at rest, especially blooming plants; they will consequently require but moderate supplies of water, just enough to keep the soil evenly moist. They should also have the coolest situation in the house unless wanted for early bloom. Look them over from time to time, shaking off any dry leaves; at all leisure opportunity tie the plants into shape. Young stock which has been pushed forward in a warm house should now be removed to the greenhouse to set their buds. Plants wanted for early bloom should be removed to the warmest house, and have liberal supplies of water. *Amœna* is one of the best forcing varieties.

CAMELLIAS should be kept regularly watered and have occasional syringing.

PELARGONIUMS, intended for making large showy specimens, should soon be repotted into eight-inch pots. Keep them very cool, with an abundance of air, and tie out the shoots as the plants fill up; do not crowd the plants. Young stock should be repotted as opportunity offers. Fumigate if the green fly appears.

CINERARIAS should now have a shift into larger pots, and have a light airy situation near the glass; water carefully and fumigate for the green-fly.

CALCEOLARIAS should soon have a shift into larger pots.

IXIAS may be potted yet, three or four in a five-inch pot. Keep in a cool part of the house till they begin to grow.

ROSES, taken up from the open ground, should be kept in a cool frame till next month; water sparingly, and shade from the hot sun.

CYCLAMENS should have a cool and airy place near the glass; water rather sparingly for the present. Seeds may be sown now for raising young stock.

CHINESE PRIMROSES, raised from seed, should now be potted off, or if already potted, have a shift into larger pots.

NEAPOLITAN VIOLETS should now be potted, if not already done, for early forcing: keep in a frame, sheltered from frost, till introduced into the house.

HEATHS AND EPACRIS. Young stock of these should be kept as cool as possible; the coolest shelf in the house is the best place.

ORCHIDS should now be more sparingly watered and kept cooler, except such as are now in season of growth and bloom.

PREPARE SOIL, and stow away a sufficient quantity for winter use.

FLOWER GARDEN AND SHRUBBERY.

The lawn is still as verdant as in summer, and well mown and rolled presents a beautiful appearance at this late season. Keep it clear of leaves by sweeping and raking, and sweep and roll the walks. Clear up the shrubbery, remove dead branches, and top dress or manure such things as require it.

JAPAN LILIES should now be planted.

HYACINTHS, TULIPS, and other bulbs should be planted, well preparing the bed by a mixture of leaf mould and sand.

PICOTEES AND CARNATIONS in frames should have a light covering of leaves, and when the weather is severe, have a covering of boards.

PÆONIES may still be transplanted: old plants, as well as those newly planted, should be protected by a thin covering of well-decayed manure. Cut away the tops close to the ground.

HERBACEOUS PLANTS should have a light covering of manure before severe frosts.

GLADIOLUS should be taken up immediately; dry them off, and put away in bags, where the frost will not reach them.

NEAPOLITAN VIOLETS, in frames, should be well aired every fine day.

TRITOMAS, LOBELIAS, FARFUGIUM, and other half-hardy plants, should be wintered in frames, where they can be protected from very severe frosts.

CANNAS should be taken up and put into boxes of dry earth and placed in the cellar, or under the stage in the greenhouse.

GRA P E S .

THE close of one of the most favorable seasons within the remembrance of cultivators, seems a fitting time to review the progress of grape growing, and recount some of the acquisitions which have been the result of a deeper interest in the cultivation of this fruit. It may be thought by some, that the season of 1860, being an exception to, rather than an average of, our usual summers, should not be selected as a period to pass judgment upon the various kinds, for not only has there been a complete escape from mildew, but even the Black Hamburgh has ripened perfectly in many open localities where they have rarely if ever quite matured their fruit. It must be admitted that without taking this into consideration, any conclusions based wholly on the past season would be incorrect; still it has so thoroughly brought out the qualities of all the varieties generally cultivated, that it has afforded the only opportunity to judge fully of their fruit alone, leaving other characteristics to be weighed by their success or failure in ordinary years.

It is now but seven years since the Concord was first introduced to cultivators, and at that time, if we except some minor kinds, it was almost the first grape of real merit brought forward since the production of the Diana. Yet how much has been accomplished in this seven years. Leaving out a few sorts previously raised but very little known, such as the Union Village, Delaware, Tokalon, &c., we have since then, of reputed excellence, the Rebecca, Perkins, Anna, Ontario, Cuyahoga, Allen's Hybrid, Logan, Maxatawny, Alvey, Rogers No. 15, and Garrigué's, not to enumerate the many sorts which are said to be valuable. So that this year the exhibitions of our various horticultural societies, despite the unfavorable winter, contained more varieties of good American grapes than ever were collected together before, and we fear as many as will be again, unless under the same favorable circumstances. It is, however, something to be proud of

to have accomplished so much; and we are sure we do not underrate the zeal of our cultivators when we say that their exertions will not cease till even less a favorable season will enable them to produce as fine a show of fruit as they have made the present year. If the kinds we now cultivate refuse to perfect their fruit, then these will be discarded, and other new sorts will occupy their place. It is but a question of time. Perseverance,—the energy known alone to American cultivators,—will overcome all obstacles to success.

Leaving, therefore, to the future to judge of that which is to come, we survey with feelings of satisfaction the past, and note down the results of our observations. That we have made substantial gains the result will show. And although our own experience may run contrary to that of other cultivators, and our estimate of a good grape differ from that of others, we shall at least have the consciousness of knowing that it has been formed from careful observation, with a full knowledge of both the merits and defects of each and every variety,—of their adaptation to general or special culture, and for both the “market” and “home consumption,” to use the stereotyped phrases; their liability to mildew and disease, and, in fine, their perfection under favorable or unfavorable seasons.

It has been a source of the highest gratification to hear in every quarter the praise of the CONCORD grape. While, at one time, few would allow it any merit, now none would risk their pomological knowledge to deny its excellence. It has indeed proved more than we claimed for it,—the universal grape for the million. It would be idle to attempt to claim for it—which was never done—a superiority in flavor to the Delaware or Diana; but as the Bartlett pear is *the* pear, while the Belle Lucrative is scarcely recognized, so the Concord, at present, is *the* grape: just as long as the Black Hamburgh will be preferred to the Sweetwater, the Concord will be preferred to the Delaware.

The present year has ripened the Concord in the highest perfection. Its real excellence just begins to be appreciated. The vines have acquired age, their rampant growth has been checked, and now their fruit-bearing qualities appear. If it

has improved under the same circumstances that have improved others it is so much in its favor. Its hardiness saved it from destruction last winter, when the Diana and Isabella were killed to the ground; its freedom from mildew is one of its great merits, and the certainty of a crop in all seasons must place this first among our hardy grapes.

The DELAWARE, after fighting its way for nearly ten years, is gaining in the estimation of cultivators. Delicious as the fruit is admitted to be, and hardy as the vines are, the berries lack size and appearance. It is a little too small, while its color does not make that show that the dark grapes do, with their rich bloom. The vines too want vigor and robustness. Young vines do not take hold of the ground readily; the foliage mildews slightly, and the slender wood does not cover the trellis quick enough. But, to make up for these defects, it is hardy, productive, bears young, and is as early as the Concord. In its culture it needs generous treatment, a good soil, and plenty of manure. This season it has been unusually fine.

DIANA is undoubtedly a very fine grape; we have little to add and nothing to retract from the first description ever given of it in our magazine for 1844, (Vol. X., p. 242.) Time, however, has revealed a few defects not then known. It is not so hardy as is desirable, for if left uncovered, a severe cold winter will destroy the canes. It sometimes mildews, and the berries ripen unevenly, some being quite green when others are mature. But when the vines are protected, and the locality and season favorable, it proves a most excellent grape, ripening usually before frost, and producing good-sized, compact, and handsome bunches of delicious quality. A warm, generous soil, and winter protection, are the requisites of a good crop.

Whether the REBECCA or Allen's Hybrid will carry the palm among white grapes is yet uncertain. We certainly know of nothing among grapes, either native or foreign, superior to a well-ripened Rebecca. It is rather small, but its rich golden amber-colored berries, typical of its luscious aroma, are only equalled by the celebrated Thomery grapes, while in the latter quality they far surpass them. The cultivator who shall

reproduce all the excellence of the Rebecca, with the size and hardiness of the Concord, will not only receive the thanks of all pomologists, but will reap a rich reward for his labor. Of the nature of the Delaware, rather slender in growth, it requires the same generous culture; but being less hardy it should have winter protection, or the shoots are liable to be cut off to the snowline. It is as early as the Diana. The foliage is small, and inclined to mildew in unfavorable weather; but the perfection to which it has always attained in its native locality at Hudson, N.Y., and the beautiful fruit grown everywhere the present year, show that it only needs the right kind of treatment to render it as certain in its crop as the Diana or Delaware. This appears to be nothing more than a rich mellow soil, with a dry substratum, moderate pruning, and protection in winter.

ALLEN'S HYBRID is perhaps too new to come under the same judgment as those already named, but as every year more than confirms the experience of the previous one, we think we are safe in predicting that it will rank among the very few really fine American grapes worthy of general culture. It has all the excellence of the Chasselas, with the earliness of the Concord, and the hardiness of the Diana. Indeed it requires but one more move, to make it the grape we have said cultivators would be so gratified to possess. We do not yet know the perfection to which it may be grown, as Mr. Allen's vines have not had that treatment which would bring out its qualities. We think, when well cultivated, the clusters will weigh a pound each, if not more; the berries are of good size, and, when fully mature, have a mellow amber hue, which adds to its appearance. The vine is more vigorous than the Delaware, and does not seem inclined to mildew easily.

The PERKINS grape, though but little disseminated, is gaining many friends. It has hardiness and good qualities to commend it, as well as vigorous growth and freedom from mildew. The clusters are not large, but the berries are larger than the Diana, which it very much resembles, and its productiveness is very great. It is early and reliable in all seasons, and is, we think, destined to become very popular. Winter

protection is not necessary, as with the Diana, but the vines flourish better and ripen their fruit earlier with it.

Among the grapes so far considerably cultivated these appear to be the principal sorts. Those which we now name have their peculiar merits, and are much esteemed by some cultivators.

UNION VILLAGE is a very large, handsome, and good grape, but its lateness at once prevents it from becoming a popular variety in the latitude of New England. Further south, where the Isabella ripens well, it will claim a prominent place. It is one of the very strongest growers, and the bunches and berries are very large, but it must have winter protection, and a warm locality, to ripen the fruit. Those who can give it this treatment will find it a valuable addition to a collection.

The HARTFORD PROLIFIC is a useful and good variety, maturing little before the Concord. The bunches and berries are of good size, but the latter are liable to drop after the clusters are gathered. The vine is as hardy as the Isabella, grows freely, and is not inclined to mildew. As the first early grape of fair quality, the Hartford Prolific may be considered a desirable variety. Next to the Concord, it is the grape among all we have noticed that will bear the most neglect in its culture.

Of the newer grapes which have been brought into notice, we have a favorable opinion of the following:—Cuyahoga, Rogers' Seedling, (No. 15,) Ontario, Clark's Seedling, Anna, and Logan.

ROGERS' SEEDLING we have already noticed. It resembles the Diana, but the bunches are looser, and the berries larger. Mr. Harrington, of Salem, has a vine which produced and fully matured one hundred and fifty bunches the present year. If it does as well in ordinary years as it has this, though not first-rate in quality, it will prove an acceptable addition to a collection.

CLARK'S SEEDLING was produced sometime since by Mr. Clark, of Framingham, Mass. It is a reddish grape, with a loose bunch, and of excellent quality. From the opportunity we had of tasting it a year or two ago, we thought it a very fine grape. It is very hardy and early.

ONTARIO is a very handsome grape, and the quality good. Its other characteristics we know nothing of, only from report. It is stated to be two weeks earlier than Isabella.

ANNA is a fine large white grape, in size of bunch and berry resembling the Catawba. It is said to be earlier than the Isabella.

The LOGAN is a medium-sized, very dark grape, of good quality, ripening in September. But its foliage is stated to be rather delicate, though it is called very hardy, as it ripens its wood thoroughly in summer. It does not appear distinct enough to become a popular variety.

CUYAHOGA has been highly praised, and specimens tasted by us were truly excellent: This, too, was in 1860. We notice in the Ohio papers that it has been unusually fine this year, and Mr. Bateham, of Columbus, thinks, "all things considered it is the best native light-colored grape yet known." The bunch is of good size.

Other grapes are commended by various cultivators, among which are the Alway, Maxatawny, Garrigue's, and Oporto, but, beyond what is already known respecting them, we have nothing to add.

We ought not, perhaps, to pass over a new seedling raised by E. M. Bracket, which is likely to prove a great acquisition. It closely resembles the Union Village in size and appearance, but is superior to that, or indeed any black grape we possess. It is earlier than the Isabella, and if on further trial it sustains its present reputation, it will rank among the best native kinds yet produced.

Having thus given our estimate of the several varieties which have been introduced somewhat generally, as they have appeared, more particularly the present year, we proceed to inquire into the causes which have produced this favorable result, deducing therefrom a lesson which may aid us in the more successful culture of the grape.

If we follow the course of the weather for the summer, we shall find it has been dry, warm, and very free from long or continued dull or even damp weather, and beyond the remembrance of cultivators extended further into the autumn—the first frost having occurred late in October. Hence the well-grown grapes had time to fully mature, aided as they

were by continuous sunshine. How shall we then avoid failure in ordinary years, when we can hardly expect such as the present one to occur often?

First, then, we can to some extent imitate its dryness, by planting only in light, sandy, thoroughly-drained soil, avoiding by all means a hard, damp, stiff loam, as sure to keep up a late growth, so that winter finds the wood immature, and the dormant fruit buds unable to resist the effects of cold if unprotected, and liable to danger when covered with earth. In France the vineyards always cover the hillsides or elevated grounds,—rarely the valleys or plains,—for the obvious reasons that the roots are kept dry, the late growth checked, and the wood fully matured.

It will be inferred from this that nothing could be more injurious in grape culture than to make the soil too deep and rich; rich it may be upon the surface, but not too deep, and always with a dry bottom. The summer and autumn rains will then leave the surface readily, the soil will be immediately warmed by the sun and air, and mildew, so fatal to the vines, will be prevented; or at least greatly mitigated. Indeed, good sound judgment will dictate that cautionary measures of this kind should be taken wherever the grape is to be extensively and successfully grown.

Secondly; though we have not the power to bring sunshine to the vines, we can, by favorableness of locality, prevent the ill effects which often ensue from long-continued wet weather. Near the sea-coast, where the easterly storms prevail, an aspect, sheltered in that direction should be chosen, say one facing the south or west, or if in the open garden, near the shelter of evergreen trees or hedges. The direct action of a cold easterly storm is far different from the sifted atmosphere of a fence or hedge. Hence the greater certainty of a crop when the vines are trained to the south side of a house, where they are sheltered from the chilly blasts and pelting rains of our easterly storms.

Thirdly; pruning, judiciously performed, is a material aid in successful grape culture. The summer growth should not be so crowded as to prevent the free admission of light and air, nor so open as to expose the fruit to alternate sun and

rain. A moderate number of strong healthy branches, with vigorous foliage, is better than a quantity of weak shoots, covered with half-grown leaves. The aim should be to avoid both extremes, and secure long, well-ripened canes, with thoroughly-matured buds. A strong vine will resist mildew, when a weaker one would give way under the attack.

Lastly, winter protection is an important consideration. Until we secure perfectly hardy vines, they cannot be considered safe in our variable seasons. If the wood does not suffer, the dormant fruit buds are affected. They do not start kindly and vigorously, and a week, often a fortnight, is lost by their weakened energies from severe cold; and though the summer's growth may be vigorous enough, the fruit still lags behind. It is a thing which did not occur to us till close observation made it apparent. In a more favorable climate, like that of Southern New York and Ohio, a week or ten days is of no great importance; but in New England, with frosty nights the last of September, a week gained is often the securing of an abundant crop.

It is not uncommon to hear of this or that vine bearing earlier than another of the same variety, and it has even been asserted that there is more than one kind of Isabella, there is so great a difference in the period of ripening: but, if we trace out the cause of this difference, it will result in the discovery that locality, soil, exposure, or good treatment, have been the instruments by which they have been effected.

It has been a desideratum to have a grape that would produce a certain crop with the least trouble,—that is, one that would grow freely without constant nursing; that would ripen perfectly before our frosts overtake it, and winter safely without the labor of covering: certainly a desirable combination of qualities. That we shall have such grapes in time we do not doubt; though we have but few now. We must, therefore, accept the nearest approach to them that we can get. There are situations where the grape will grow freely, and where the perfume of its flowers, the shade of its foliage, or the excellence of its fruit, are alike desirable, but where they cannot easily be covered during winter. For such places a perfectly hardy grape is wanted. But, for ordinary purposes of culture,

this is of no great consequence. The vines must be loosened from the trellis to undergo the operation of pruning; the autumn is the best season to do this, and when once detached and pruned it is a work of so little labor to throw them upon the ground and cover with a few spadefulls of earth, that we wonder that we ever made so much ado about it. They are then safe from all zero weather; and though our ordinary winters might not require this slight trouble, the danger of sudden cold is so great, that we are only safe with this protection.

Let our grape growers persevere in their efforts to produce new varieties. The end will well repay all the care and labor devoted to so desirable an object.

CULTIVATION OF EVERGREENS.

BY EVELYN.

THE common Cypress (*C. sempervirens*) is an evergreen tree, a native of the south of Europe, rather low in stature, but sometimes rising to a considerable height, and remarkable for the durability of its timber. It is a formal, tapering, pyramidal tree, growing indeed very much like our white cedar—and averaging, under favorable circumstances, about 35 or 40 feet in height. The nut is generally produced in pairs, on the sides or at the extremities of the branches, ripening during the winter and shedding its seeds in the spring. The wood, like that of the American red cedar, is of a beautiful lilac hue, but harder and of closer grain, and extremely durable. The gopher wood, of which the Ark is said to have been made, is supposed to be cypress, and the Egyptians made their mummy cases of it.

There has always been a controversy among botanists to determine whether the upright and the spreading cypresses are the same or different species. Gerard calls the upright the tame cypress, and the spreading the wild one. The tree has long been plentiful in the British nurseries; and has been so extensively distributed that there is hardly a country seat

in which it is not to be found. The pyramidal form of the tree is very carefully cherished by training and by clipping, and hence some have supposed that the difference between the upright and the spreading cypress has been produced by art. This species is not entirely hardy; though it is not injured by the mild moist winters of Great Britain, it is frequently killed by the winters in France.

The cypress needs no particular kind of soil, though it prefers situations that are sheltered, and rather dry than wet. In this respect it differs totally from the American species. It may be propagated by cuttings, which must be planted in autumn, like those of the arbor vitæ, and treated in the same manner. The seeds, however, not being perfectly ripe in the autumn, do better to hang on the trees during winter, and then planted in the spring. In England, the seeds are sown in flat pans or in boxes, because the young plants are tender when they first come up and require protection. Unlike the seeds of the Thuja, that often lie in the ground a year before they vegetate, those of the cypress come up in a month or six weeks. Sometimes they are kept three or four years in pots, when they are not desired to attain a large size; but if standard trees are wanted, they must be planted out at the end of the second autumn where they are finally to remain.

The American northern cypress or white cedar, (*C. thyoides*,) receives its botanical name from its resemblance to the arbor vitæ, in a certain flattened form of its foliage. This tree is a native of wet swamps, and is well known to our inhabitants. This tree often attains the great height of 70 or 80 feet, though it is rarely more than three feet in diameter. The wood is light, soft, fine grained, and easily worked, assuming, after it is well seasoned, more or less of the reddish hue of the other species. It has a strong, aromatic odor, and exceeds all other American trees in its capacity to resist alternate exposure to wet and dryness.

The white cedar is found growing naturally only in wet swamps, chiefly in the maritime districts, extending from Massachusetts as far as Virginia, where it nearly fills the extensive marshes that lie adjacent to the salt meadows, which are overflowed by the sea. In New Jersey, it covers almost

alone the whole surface of the swamps, of which the tupelo and the red maple occupy the borders. Farther south it is mingled with the deciduous cypress, and soon after disappears entirely. These swamps, for the most part, are accessible only during the dry parts of summer, and when they are frozen during winter. In Massachusetts they are inundated a considerable part of the year, and until they were penetrated by railroads they had never been explored.

Emerson describes the tree as follows:—"The trunk is very straight and tall, tapering very gradually, and towards the summit, set with short, small, nearly horizontal irregular branches, forming a small, but beautiful head, above which the leading shoot waves like a slender plume." The seeds may be sown early in spring, and treated in all respects as advised of the European cypress. It may also be propagated by cuttings and layers. In England it is cultivated in dry soils, where it is found to grow more luxuriantly than in cold and wet soils. Mr. Emerson, just quoted, remarks: "The white cedar has so many excellent qualities, that, in an industrious and manufacturing community, it can never cease to be valuable. It is one of those trees, therefore, which ought to be cultivated in great numbers to supply the wants of posterity. Fortunately it is one which can be cultivated with less trouble, and at less expense, than any other forest tree, and it conflicts with no other. There are large tracts of cold, swampy land, which could be drained only at great expense, which might in their present state be made to produce valuable forests of this tree. It would be only necessary to gather the seed from the forests already growing, and cast it abundantly in the fall of the year, upon the surface of the ground or water, in the morasses and swamps intended for this use. In six or eighteen months the seeds will vegetate. In a few years thinnings might be made, which for inclosures alone would pay a high rate of interest upon the value of the land and of the labor bestowed."

The red cedar, (*Juniperus virginiana*), bears a great superficial resemblance to the white cedar, not generally rising so high, and may be distinguished from it by having its fruit in the form of a berry, and leaves that exhibit less tendency to

arrange themselves in a plume. Its branches, which are numerous and close, spring near the earth and spread horizontally, and the lower limbs in young trees are frequently as long as the trunk. The wood is fragrant, compact, fine grained, and light; but heavier and stronger than that either of the white cedar or southern deciduous cypress. The duration of the tree is upwards of a century, and one tree is described by Loudon, at Whitten, England, as 60 feet high, with a trunk two feet in diameter.

Michaux remarks: "in Virginia and the more Southern States it is rare at the point where the tide ceases to flow in the rivers: further inland it is seen only in the form of a shrub, in open, dry, sandy places. In the Western States it is confined to spots where the calcareous rock shows itself naked, or is so thinly covered with mould as to forbid the vegetation of other trees. Though the red cedar grows naturally in the district of Maine, and in the islands of Lake Champlain, it is repressed by a winter as intense as that of northern Germany; and develops itself less vigorously than in Virginia or further south, where the soil and climate are favorable to the growth of the tree and the perfection of its wood. Upon the downs, it is often buried in the sand cast up by the waves, except the summit of the branches, which appear like young trees above the surface. When unincumbered with sand, as in the middle of the islands, and on the borders of the narrow sounds which flow between them and the main, it attains the height of 40 to 45 feet; but it is rare to meet with trees of this size northward of the river St. Mary, within the ancient limits of the United States."

The mode of culture is the same as that recommended for the arbor vitæ. Though not a handsome tree it may be made so by careful pruning when it is young. The wood is light, close-grained, smooth, and compact, and possessed of great durability; and the heart-wood, from the color of which the tree derives its name, has been extensively used for making pencils.

Dr. Bigelow and Sir William Hooker consider the red cedar and the savin of Europe as the same species. The medicinal properties of both are the same, and both assume the same

fine pyramidal form when found under favorable conditions of soil and climate, and the same fantastic shapes in cold, dry, and rocky situations.

The *Juniperus communis* in America is never anything more than a prostrate shrub, known hereabouts under the common appellation of Eagle's nest. The juniper is common in all the northern parts of Europe, both in fertile and barren soils, on hills and in valleys, on open sandy plains, or in moist or close woods. On the sides of hills its trunk grows tall, but in most other places it is a mere shrub. There is an ancient belief that the shade of the juniper is unwholesome.

There are several other junipers imported into our nurseries, some of which are worthy of cultivation.

We come at last to one of our most beautiful forest trees, the *Taxodium distichum*, or deciduous cypress. This is a native of the southern part of the continent of North America, separated from the genus *Cupressus* chiefly because the male catkins are disposed in loose spreading branches, instead of being solitary and terminal; and the female catkins roundish and scaly like the male, &c. This species attains in its native swamps the height of 120 feet, and is in every respect a very beautiful tree. Though pyramidal in form when it is young, yet, when full grown, it has a spreading, broad head, like that of the cedar of Lebanon when old. Such a shape is common in its native swamps. The leaves are small, fine, and somewhat arched, with the convex side outwards, and have a light, fresh, and very beautiful tint. In the autumn they change from a light green to a dull red, and soon fall off.

The blossoms appear in North Carolina in February. The cones are about as large as the end of the thumb, hard, roundish, and of an uneven surface. The seeds are ripe in October, and retain their productive power two years.

This tree has not been cultivated very extensively in the Northern States; but the occasional specimens we see in private gardens prove it to be hardy. In England considerable attention has been paid to this tree; and Loudon says of it: "A rich moist soil is required to produce the deciduous cypress of any size, and it will not thrive in elevated situations. The species is increased by seeds which are procured from

imported cones: they may be treated in all respects like those of the common evergreen cypress, and like them come up the first year. The tree may also be propagated by cuttings put in in the autumn, in sand or heath soil, in the shade, and kept moist. Cuttings of the winter's wood, or of the summer's shoots with the leaves on, will root in a vessel of water in a very few weeks, and if an inch of soil be placed at the bottom of the vessel, the fibres will root into it, and the plants may be used as if they had been struck in the usual manner. Layers, put down in a moist soil, root the first year."

We hope to see this beautiful and magnificent tree more extensively propagated in this country, where it has been neglected probably from the mistaken supposition that it would not bear our northern winters, and that it must in all cases be planted in wet places. All that seems to be required is a deep and moist soil, but it is not necessary that it should be swampy.

GROWING FRUITS IN MOSS BASKETS.

BY ALFRED CHAMBERLAIN, NEWPORT, R. I.

ACCORDING to my promise, I send you a statement regarding my *Patent Moss Baskets*, what they are designed for, and the advantages of them. I will in a few words describe them, so that your readers may have an idea of them. After several years of continual experimenting, I have at last succeeded in growing successfully, and perfecting equal to any of the most approved methods practiced, all kinds of fruits and flowers, both for use and ornament. When I procured my patent at Washington, I exhibited before the commissioners a basket containing a Black Hamburgh grape vine in full bearing, which were pronounced, by competent judges, equal if not superior to those grown in the house in the ordinary way; also a basket containing a peach tree in full fruit, of most excellent flavor, fine form, and beautifully colored. These were all tested by connoisseurs, and stated to be superior to any grown in the ordinary way.

A plate of the basket of grapes, as presented to Mrs. Lincoln, is sent with this, (FIG. 27,) so that your readers may judge of its appearance. This method of growing fruit and flowers is preferable to any other, for its beauty, simplicity, and success, as less care and attention is necessary than for ordinary plants, and they will last for years without renewing or shifting.

All plants, fruits, and flowers can be grown in this way, such as pine apples, oranges, figs, grapes, peaches, pears, &c., besides all the small fruit, gooseberries, currants, strawberries, &c., to say nothing of the more beautiful and attractive things, such as the camellias, roses, azaleas, fuchsias, orchids, ferns,



27. MOSS BASKET FOR GROWING FRUITS.

and variegated-leaved plants. When once seen and appreciated, no one will be without their "Hanging Gardens." What more beautiful for the sick room than a basket of choice fruit or flowers, that will not decay or fade, but continue to grow and bloom, and cheer the drooping invalid; or for the window or the dinner table, what more elegant than these baskets, all covered with the choicest specimens of fruit or the finest of blooms? Thousands of persons have, during the past season, visited the residence of the Hon. W. B. Law-

rence, at Newport, R. I., to see these wonders and novelties in gardening; all were surprised and delighted with the beauty of these baskets. They have not been exhibited in public, except at the last meeting of the Brooklyn Horticultural Society, where a basket, containing a pine apple in full maturity, was shown, and pronounced by several distinguished horticulturists superior to any they had ever seen grown either in England or the West Indies; also a basket of strawberries in full fruit, ripe, partially, and some in flower, in the middle of November; also a grape vine, peach tree, and two baskets of miscellaneous plants in full bloom.

As soon as ready for dissemination notice will be given through this paper.

The last of October, Mr. Chamberlain sent us some remarkable specimens of pears grown in this way. The Duchess weighed 23 OUNCES; the Beurré Diel, 12 ounces, and the others were large and fine. We trust another year Mr. Chamberlain will show some of his specimens in Boston.—ED.

POMOLOGICAL GOSSIP.

NEW SEEDLING PEAR.—We have been presented by Mr. J. Richardson, of Dorchester, with specimens of a seedling pear produced by him. In nearly all outward appearances it is a near approach to the Bartlett, being quite as large. But in quality it far surpasses it, being at the same time a month later, a season when we need more large showy pears. When well known it will take its place among our very finest pears.

CHASSELAS VIBERT GRAPE.—Mr. Rivers speaks highly of this grape. It obtained the first prize at the Crystal Palace show, May 18th, last. The judges did not recognize its proper name, but awarded the prize to it as a sweetwater grape. Its berries were very large, and of a pale amber color; flavor excellent. This variety of the sweetwater grape was raised by the late M. Vibert, of Angers, some ten or more years since, and no

new variety of this class is of greater excellence. Its foliage is deeply incised, very hairy on its under surface, and thick and substantial, so as to be very striking. Chasselas Duhamel is its twin brother, and was raised from the same batch of seeds. It differs but little from the Chasselas Vibert and is equally good.

KEENS' SEEDLING STRAWBERRY.—In our late article on strawberries, we stated that this variety was still one of the most popular sorts in England. In this we are corroborated by an English writer, who, in speaking of the principal varieties of strawberries, says: "take Keens' Seedling for all points, it will be a long time before it is superseded by any kind at present before the English public. I have had enormous crops of these, and the flavor, though not A 1, is not surpassed by many kinds." He also remarks that he knows "it is the opinion of a good practical man, that, for forcing, no strawberries are equal to Keens' Seedling, Oscar, and Sir Harry, the first being the best."

BRITISH QUEEN PEAR.—This is the name given to a new seedling pear, raised by Mr. Ingram, of the Royal Gardens, Frogmore. It is supposed to have been obtained from the Marie Louise. Specimens of the fruit were exhibited before the Royal Horticultural Society, October 8, and were awarded a first-class certificate. The fruit was above the middle size, pear-shaped, of a warm red color next the sun, and possessing a sweet juicy flesh. When better known it is said it cannot fail to be a favorite.

VESSIER'S PEACH.—A new French variety, fruited by Mr. Rivers in the orchard house. The specimens, from pot culture, measured $10\frac{3}{4}$ inches in circumference, and were rich and melting beyond any late peach he had ever tasted.

EARLY VICTORIA PEACH.—This is the same variety that was recently noticed in our pages as Rivers' Earliest. Mr. Rivers recently exhibited the fruit before the Royal Horticultural Society, with the request that it should be called Early Victoria, which name was adopted. Mr. Rivers' account of it is as follows:—I send you four fruits of a seedling peach which I have this moment gathered from the parent tree, raised from a stone of the Early York in 1854. It has hith-

erto proved the earliest of all, except the Red Nutmeg, which it usually succeeds. This season it commenced to ripen on the 5th September, or a week earlier than its parent, the Early York, and this has for four years, (namely, from 1858, when it first gave me fruit, to the present time,) been its tendency, with the exception of 1858, when in common with very young seedling peach trees (as I find from experience) it ripened its fruit very early, and quite ten days before its parent. It has large flowers, serrated leaves, and a habit robust and vigorous in the extreme; being, with the Early York, the only sort that was not killed last winter in the open quarter where the frost was most severe (from 4° to 6° below zero). If thought worthy of a name, I propose the Early Victoria. The fruit is about medium size, pale yellow on the shaded side, and dark dull maroon on the side next the sun. The flavor was most delicious, and the fruit was highly approved by the committee as a variety for orchard-house cultivation, but they suspended judgment on it as an outdoor variety, until it had been grown against a wall in the open air. It was superior to the Early York or Early Ann, which accompanied it.

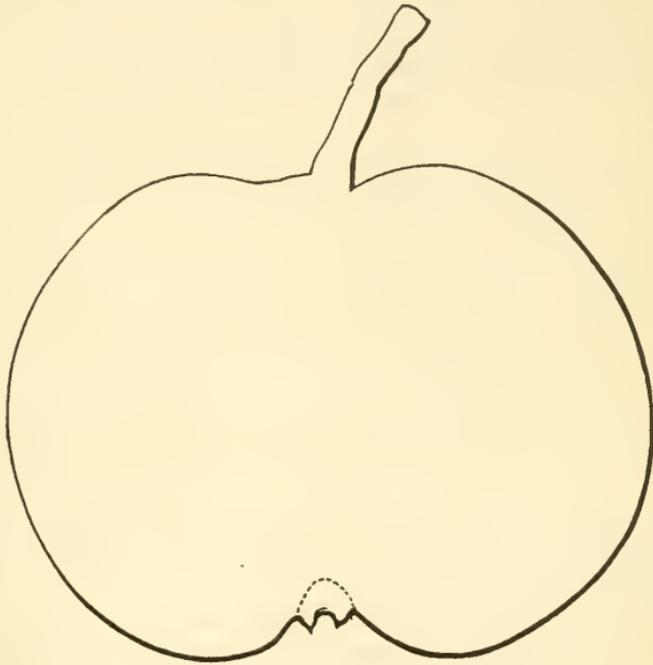
THE PENN PEAR.

BY THE EDITOR.

UNDER the name of the Penn pear (FIG. 28) we lately received a very handsome specimen, through the kindness of Epes Sargent, Esq., of Roxbury, an earnest amateur in pear culture. He had previously received scions of the tree, which he had grafted into healthy old stocks in his garden, but had not seen the fruit. The specimen was accompanied by the following letter from Mr. Sargent:—

I send you a specimen of the Penn pear, of which I spoke to you some weeks since. It was sent me by John Earle Williams, Esq., president of the Metropolitan Bank, New York, and who has a beautiful place at Irvington, on the Hudson, where he cultivates many of the choicest varieties

of the pear. The new variety, to which he has given the name of *Penn*, originated in New Jersey, near, I believe, some spot which tradition associates with the great founder of Pennsylvania. It is described to me as a remarkably luscious and juicy variety, and one that is likely to become very popular. It is of good size and attractive appearance, as you will see. As I have not yet tasted one, I cannot give an opinion as to its merits. The specimen I send is not quite in a state for eating. Probably in a cool cellar the pear will keep sound into November.



23. THE PENN PEAR.

Subsequently Mr. Sargent sent us the following particulars of this pear, received from one who raised it:—

The Penn pear grows in Bordentown, N. J., opposite the Penn manor—hence the name. There are two trees, I am told, both in the same garden. The tree invariably bears a good crop of fruit. If properly cared for the pear may be kept till Christmas, though eatable in September. Judging from the untimely haste of the scion on my tree, which put

forth a dozen blossoms a twelvemonth after it was grafted, I should say it was a remarkably early bearer.

The pear is remarkably juicy, and uncommonly sweet, but not so highly flavored as the Seckel and some others. It has a large, somewhat *plebeian*, core, but is sufficiently thin-skinned to relieve it from any suspicion of being low-bred. Its admirers now claim for it Wm. Penn as a progenitor. My own suspicion is, however, that a less noble ancestor must suffice for the pretensions of the Penn pear; and if I had given it the name of its supposed parent, I should have called it (as there is already a Napoleon) the *Bonaparte* pear! I think it not unlikely, that as Joseph Bonaparte lived in Bordentown, this nameless fruit found its way into the soil of our country through his agency.—Yours Resp'y, EPES SARGENT.

We did not find the Penn pear quite up to our expectations, but as Mr. Williams informed Mr. Sargent "that it was not quite up to the mark this season," we look for improvement another year. We recollect, one season, of receiving specimens of the Sheldon pear from the original tree, which were almost tasteless: but as we had previously eaten it when nothing could surpass it, this circumstance had no influence on our judgment, as it subsequently proved. It may be so with the Penn. It is certainly a large, handsome pear, with a clear yellow skin, very smooth, and if a hardy, vigorous, and healthy tree and a good bearer, will become a very desirable pear. We add our own description:—

Size, rather large, about $2\frac{1}{2}$ inches in diameter and 2 deep; form, roundish oblate, slightly depressed at the stem, with a slightly uneven surface; skin, fair, smooth, clear pale yellow at maturity, thickly dotted with round russety specks; stem, medium length, about half an inch long, moderately stout, and obliquely inserted in a scarcely perceptibly cavity; eye, medium size, partially closed, and rather deeply sunk in an open slightly-ribbed basin; segments of the calyx short; flesh, yellowish white, coarse and very juicy; flavor, sugary, pleasant, and good; core, large, slightly gritty; seeds, medium size, short, rather broad. Ripe in October.

THE BIGNONIAS.

FROM THE ILLUSTRATED BOUQUET.

THE Bignonias are among the most extensive tribes of climbing plants, mostly natives of tropical climes, and requiring a high temperature to grow and bloom freely. Two only are natives of the United States, viz., the *B. radicans* and *B. capreolata*; the former well known as the Trumpet flower, and though not so common as it should be, is yet considerably cultivated, being hardy and very ornamental. *B. capreolata* is from the south, and will not stand our winters. *B. grandiflora* is from China; it is a very large and splendid species, and nearly hardy; with the same protection given to the grape we have seen it bloom in great beauty.

Several of the species have never been introduced into our gardens, and only a few are cultivated in Great Britain, the principal of which are the kinds named in the following article. Other species are said to be superb, especially one which grows in South America, with very large crimson or purple flowers; a gentleman, residing on the Spanish Main, informed us that a single plant of it covered his piazza, and flowered more than half the year. He kindly sent us a plant, but we were unable to save it. It appears to be well worthy of introduction.

The *B. venusta* appears to be the most remarkable kind. Its flowers are deep rich orange and are produced in immense clusters of from 50 to 100 blooms, and these continue to appear from November to April. During the whole winter it is one of the most magnificent objects in the greenhouse.

B. jasminoides and *picata* grow freely in the greenhouse, and bloom superbly during the summer.

B. venusta requires particular management to flower it in perfection. The roots must be placed where they can have a gentle warmth, while the plant itself seems only to need the ordinary temperature of the greenhouse. This treatment is specially alluded to in the paper from which we quote. Another mode is also detailed, which we have not tried, but from experiments with two or three plants, we are satisfied it can only be flowered in perfection, in the winter season, by giving the

roots a gentle bottom heat, either by means of hot water or brick flues. The safest way to treat it, is to plant it near the furnace, where the soil will be kept constantly warm. Where the situation is favorable, and room allowed, a single plant in three or four years will cover the roof of a moderate-sized greenhouse. Every spring, after it has done blooming and has ripened its wood, it should be pruned in short, say about the month of April. It should be sparingly watered for a month or so, until it begins to break, when it should have a liberal supply, which should be continued till the end of September. By this period the new shoots will have covered the roof or back wall, trained, as they should be, to wires or some sort of trellis; and the buds will soon begin to appear. It is from this period that the roots require warmth, to completely develop the flower beds, which will appear at the axils of the leaves and completely clothe the plant. Water, at this season, should be well aired before watering, to prevent chilling the soil. By the middle of November the flowers will begin to open, and will continue to bloom until spring, presenting a magnificent display.

B. grandiflora we commend to the notice of amateurs, as a splendid greenhouse climber, well worthy a place in every collection. We only wonder it has not been introduced long before this. It grows rapidly, and its very large flowers have a very brilliant effect.

We annex the following account of these plants:—

BIGNONIA CHAMBERLAYNII is one of the finest of the yellow-flowered species. It is of moderate growth, the branches extending from ten to fifteen feet, at which length they show a tendency to bloom freely, proving its adaptability for cultivation in hothouses of ordinary dimensions; it forms, indeed, one of the best summer-flowering stove climbers in its section. The plant is distinguished by a neat thinly-branched habit. Its leaves are dark green, glossy-surfaced, obscurely-nerved, with ovate-pointed leaflets, which are generally produced in pairs, and in this state the rib of each leaf terminates in a strong tendril; when in a more luxuriant state of growth, the leaflets are borne in threes, the tendril disappear-

ing and becoming replaced by the higher development of a terminal leaflet; the leaflets moreover are unequal-sided at the base, being narrower on the side nearest to the rib or rachis. The blossoms are produced in axillary drooping racemes, and are large and trumpet-shaped, three inches in length; the long narrowish tube, which is of a rich golden yellow, especially in the inside, and corrugated or channelled on the lower side, becomes expanded at the mouth into a five-lobed bright sulphur-colored limb or border, three to four inches in circumference.

This species is well adapted for planting out in a border or pit at the side or end angles of a plant stove, where its branches might be trained horizontally near the glass. Its drooping panicle-like racemes of flowers are very beautiful and effective.

B. VENUSTA. This is one of the most splendid hothouse species in this noble genus, and amongst the most extensive in its range of growth, single plants being known to cover a space of from two hundred to five hundred feet. It is, however, entirely free from the gross and rampant vigor common to so many climbers. In its mature growth it is distinguished by its long, slender, darkish gray or brown pliant stems, strikingly adapted for attaining a lofty elevation, or covering an ample surface. Its leaves are ternate, or having the leaflets in threes on the lower parts, and binate or in pairs on the upper or terminal part of the branches; the leaflets being of medium size, thin, smooth, acuminate-ovate, rich green, attached by obscurely villose-grooved petioles or foot-stalks. The flowers are produced during the late autumn and winter months, at the termination of the axillary growth, in numerous clustered corymbs; they are of a rich vermilion-orange color, and trumpet-shaped in outline.

B. PICTA, which is also known as *B. speciosa*, is a very neat species of moderate vigor and extent of growth, having smooth round slender stems, with darkish green obovate oblong glossy-surfaced leaves, and numerous funnel-shaped blossoms, two inches in diameter, of a pleasing violet shade upon an interior white ground, and marked with rich purple lines on the lower border or limb.

B. (TECOMA) JASMINOIDES ROSEA. The type of this species forms a handsome evergreen climber for the greenhouse and conservatory. It has bright green pinnate leaves, with ovate leaflets, and produced terminal racemes of large tubular funnel-shaped blossoms, each nearly two inches in diameter; white, with a rosy-red throat. The variety, *rosea*, is superior to its prototype in being a more prolific bloomer, with a richer colored centre to the flowers.

B. (TECOMA) GRANDIFLORA. A highly ornamental, deciduous, cool greenhouse shrub, of sub-climbing habit, requiring a free space for vigorous root-growth, under which conditions it will attain an elevation of from ten to twelve or fifteen feet; but where restricted at the roots it will blossom at a much smaller size, if well supplied with moisture in the early summer months. It is robust, but sparingly branched in habit, and in its season of growth bears elegantly winged or pinnate leaves from eight to twelve inches in length. The flower panicles are terminal wide-branching, one to two feet in diameter, bearing large broad-limbed trumpet or funnel-shaped blossoms, which are three to four inches in width, and of a bright reddish orange.

B. (TECOMA) RADICANS MAJOR. This is a variety of the fine North American hardy climbing species *B. radicans*. Its style much resembles that of *B. grandiflora*, forming a handsome summer flowering, deciduous, hardy shrub, from six to ten or more feet in height, with ample elegantly-winged ash-like leaves, and large terminal wide-panicked racemes of rich orange-colored trumpet-shaped flowers, with a red limb or border.

B. (TECOMA) RADICANS ATROPURPUREA. This is one of the best varieties, allied in habit of growth and bloom to the preceding, and having equally elegant winged leaves, and conspicuous flowers of an orange-red color, tinged with violet purple.

From its almost unequalled vigor of growth, *Bignonia venusta* is only adapted for situations where its branches can be trained to the average extent of its growth, near the glass, in order to mature its buds. It is admirably adapted for planting in an apportioned space at the angle or side enclosure

of a pinery or hothouse-pit, where its roots and fibrous root-lets can not only have space for pasturage, but may derive an extra stimulus from the genial temperature supplied to them throughout the growing season, by the tan, or fermenting material. When planted in such situations, it should be allowed the entire depth of the pit, a temporary division of two to four feet square being formed with perforated boards or slabs, to admit the egress of the roots into the tan bed. In the arrangement of the soil, free bottom drainage must be provided, over which should be laid a foot thick of rough turfy peat, the rest of the space being filled to the required level with a mixture of equal parts of turfy heath mould and loam, thoroughly incorporated with rough charcoal and river sand to the extent of one-sixth of the whole amount. The soil should be allowed to settle previous to planting, in order that the base of the stem may be kept near the surface.

There are differences of opinion existing as to the proper mode of treatment for this plant, arising from different views of the importance of warmth at the root. Some cultivators allege that this is of little consequence; whilst, in favor of the opposite opinion, it is affirmed that the principal examples of successful growth have been produced by means of the stimulus arising from the contiguity of the roots with a body of warm tan, its influence being manifest for a series of years in an abundant and annual display of bloom. Though these well-authenticated instances confirm the importance of maintaining a correlative temperature between the roots and the branches, which condition may, to a given extent, be considered essential where the highest effects of culture are sought, they do not by any means invalidate the independent evidence of the constitutional adaptation of the present species to bear a lower degree of root temperature, under which, all other points of management being equal, a mature extent of growth will produce an average amount of bloom. That such is the fact may be testified by personal observation, in the case of specimens judiciously planted within the ordinary enclosures of hothouse borders, apart from artificial bottom heat. The different influences of these opposite conditions may be stated

thus:—root warmth is favorable to a more rapid growth, and a consequent earlier fertility, whilst the same extent of growth obtained with a lower ground-temperature will be longer in arriving at a blooming state. After the blooming period in winter or early spring, water must be withheld from the roots in a graduated manner to bring on slowly a perfect state of rest from growth; the plant will thus become deciduous. About March or April the branches must be pruned back to three, five, or seven feet in length from the root stock, the former length being most proper in young plants, and the latter in strong mature specimens. About the first week in April the plant is to be again started into growth, and as the growth advances, the principal shoots or stems are to be trained erect towards the roof lights; afterwards, as it progresses, a number of branches, sufficient to fill out the space, must be selected for training upon the horizontal trellis or wires, allowing ample range for the growth of the laterals, which must be kept thinly arranged to admit of full exposure to light until the racemes of bloom are formed. The plant should be freely syringed while the growth is progressing, but this must be discontinued from the time the color of the flower-tubes becomes manifest.

Bignonia picta is an ornamental early summer-flowering plant, suited to medium-sized structures, and requiring the genial temperature of a greenhouse or conservatory, where, if planted in a partially elevated pit or border, that its flexile shoots may extend from ten to fifteen feet along the horizontal or ascending rafters, or upon erect trellis work where they will be well exposed to the light, it will prove an effective object by its profusion of bloom.

Bignonia jasminoides and its variety are plants of neat habit and beautiful growth, well adapted for planting in a border or pit of a greenhouse or conservatory, where they may be partially restricted at the roots. They are not to be watered too freely after the annually-renewed growth is formed, but allowed a partial rest until spring. The flowers are produced from the terminal shoots, so that these should on no account be pruned back, unless attenuated growth or a thinly-branched habit renders it necessary; they should rather be trained ob-

liquely or reversed to induce lateral growth, by forcing the development of incipient buds from the lower parts. A full exposure of the upper matured growth to vertical light, a somewhat limited space for the root organs, and very moderate waterings after the spring growth is fully matured, are conditions which will be found favorable for the production of blossoms.

Bignonia grandiflora is well adapted for planting in the background border of a vinery or conservatory, in which its growth may have full exposure to light admitted from the roof, and where a genial warm temperature is maintained in the early spring months. It is also suitable for the interior decoration of the entrance areas to large forcing-houses and conservatories. It luxuriates in the ordinary rich mixtures of pulverized turfy loam, heath mould, and leaf soil, used in an unsifted but broken state. As the summer growth progresses it should be freely syringed, and as it advances towards the mature blooming period, it should be uniformly and plentifully supplied with water, for a deficiency of root moisture at this period, attended with a dry or arid atmosphere, will cause the flower-buds to drop off, as they do under similar circumstances in the camellia. After the season of bloom, the branch growth should be encouraged to maturity by giving occasional free waterings at the root, and daily leaf sprinklings with the syringe, until the bark assumes the rich brown tint of that of the vine. The gradual fall of the leaf will indicate the less importance of moisture in the soil, and from the late autumn months the plants may be allowed to remain dormant until the spring, at which period they should be pruned back to within three or four of the lowest buds of the last or summer-made growth. Where the plant is intended to cover a wide upper or lower space, the luxuriant leading shoot should be pinched back to within a few of the lowest buds, during their rapid growth, to encourage the formation of lateral or side branches; and where the plant indicates great vigor with full exposure to light, all the lower side shoots should be thus shortened during their quick growth to induce a series of lower branches by the development of incipient buds.

Few conservatory shrubs can vie for grandeur of effect with this species when seen in a high state of culture. Indeed, on account of its magnificent racemes of bloom, it ranks with the finest plants yet introduced of this style of growth, and it adds greatly to its value as an ornamental plant that it is generally adapted for a medium temperature, while growing, and is comparatively hardy in the dormant winter months. In France it flourishes in the highest luxuriance as an open-air wall shrub, expanding its gorgeous masses of rich bronze and flame-red trumpet flower-tubes in profusion, and when thus seen is attractive above every other flower or tree in the garden. In the mildest seasons of our English climate, as experienced in the western counties, as well as in the warmest localities of Ireland, it has occasionally matured its bloom; but it is only when screened from all opposite extremes of temperature by the treatment now recommended, that its beautiful sunset hues of color and leaf verdure are fully brought out.

The varieties of *Bignonia radicans* are admirably adapted for planting out in an open-air border, against a wall or screen of trellis work, requiring a good depth of rich garden-soil to mature their growth for bloom. When well established their conspicuous blossoms are exceedingly effective. After the winter rest, they should in spring be cut back to within three or four of the lowest buds of the ensuing summer growth, and the roots should be re-surfaced with rich soil. Where the subsoil over which they are planted is dry, water should be freely applied in dry weather to preserve the bloom buds.

FLORICULTURAL NOTICES.

LAPARGERIA ROSEA.—This very beautiful greenhouse climber has recently flowered in the collection of Jona. French, Esq., of Roxbury, who exhibited blooms of it at the meeting of the Massachusetts Horticultural Society, Nov. 9th. It is rather difficult of cultivation, but its beauty is ample to deserve any exertions to grow it.

NEW LILAC.—A new and remarkable lilac has been raised in Belgium, and introduced by Van Houtte, who figures it in the *Flore des Serres*. It is called *Dr. Lindley*. According to the figure, the large and massive bunches of flowers are eleven inches long, of a most brilliant violet-purple color, and are still more remarkable for the firm texture and rounded form of the blossoms. It was raised by M. Darimont.

EUCHARIS AMAZONICA.—This exquisite bulbous plant has recently flowered in our collection, and its snow-white very fragrant blossoms render it an invaluable acquisition. Hitherto it has not appeared to be a free flowerer, but this we apprehend is owing to improper treatment. When rightly managed, it is quite as free to blossom as other amaryllidaceous plants.

DIANTHUS HYBRIDUS MULTIFLORUS.—This is the name of a new cross-bred pink, introduced by Messrs. Henderson & Son, of London. This variety, which it is stated is worthy of especial notice, is of continental origin, and there can be no doubt that one of its parents has been the carnation or clove, some of whose fragrance it has retained. The form of the leaves is exactly that of the plants just mentioned, but without the well-known glaucous hue, the color being a deep green. When planted in lines, in an open border, as was the case in Messrs. Hendersons' grounds, the male or hybrid pink proved itself to be well adapted for flower-garden purposes. It had evidently a remarkably robust constitution, which some other hybrids of similar character do not possess; but at different periods of the year when this variety has been noticed, this free and healthy growth has been constant to it. The variety is altogether one which, when known, will be a favorite in the flower garden. Each of the plants forms a dense compact tuft of dark-green herbage, attaining a general height of about six inches from the ground, and out of this, grew up from each to the height of a foot, some half a dozen of sturdy free-branching stems, bearing a profusion of gay rosy-carmine sweet-scented flowers, of varying shades, according to their degrees of development. Besides its vigor of constitution and well-marked permanent habit, this hybrid pink has the desirable quality of being a perpetual bloomer, con-

tinuing in flower from June to November. The property of yielding a succession of flowering stems seems to indicate the probability that some form of the fine ornamental race of perpetual or true carnations may have been one of its parents. It is a very pretty object when grown in pots, and brought into flower in spring, for indoor decoration. At all times, but especially in spring, the flowers afford welcome materials for bouquets.

ALLAMANDA VIOLACEA.—This new and said to be beautiful violet-colored species, has bloomed in some English gardens the past season for the first time, and though not exactly violet colored, is not yellow, as has been stated by some American cultivators who had imported it, but undoubtedly received a spurious sort. A writer, who has flowered it, thus speaks of this species:—A plant of this is now in flower here for the first time, as I have not seen any mention of its having flowered elsewhere in England, and as its name gives a very incorrect idea of its color, perhaps a description of its appearance may be of some interest. In shape and size the flowers closely resemble those of *A. Schottii*. The color is more lilac than violet, and it is not unlike that of the pink variety of the common primrose, but it deepens almost into a brown in the interior of the flower. It is a handsome flower, though somewhat wanting in brilliancy of color, and is certainly not equal in beauty to *A. Schottii*. Still, as it presents a good contrast to the yellow flowers of the rest of the genus, and as it seems to possess with them the advantage of being easily and quickly grown into a specimen plant, I have no doubt that it will prove a favorite with plant growers. I think it seems to like more heat than other *Allamandas*. My plant was grown in a very moist orchid house, during the summer, and was placed on a tan bed in a fire pit in August. Its correct name is said to be, probably not *violacea* but *A. pérbula*.

600. *GOMPHIA OLIVÆFORMIS* *St. Hil.* OLIVE-FRUITED GOMPHIA. (*Ochnaceæ*.) Brazil.

A hothouse plant, growing three feet high; with yellow flowers; appearing in spring; grown in light rich soil; increased by cuttings. *Bot. Mag.*, 1861, pl. 5262.

A very handsome plant, with large, smooth, thick green foliage, and terminal panicles of very bright yellow flowers,

which appear in the spring months. It is a new species of a rather rare genus of tropical plants, and was introduced by Messrs. Henderson, from the continental gardens. If it does not prove difficult of growth it will be a very beautiful accession to our hothouses. (*Bot. Mag.*, August.)

601. CALADIUM BICOLOR, VAR. VERSCHAFFELTII *Ch. Lem.*
VERSCHAFFELT'S TWO-COLORED CALADIUM. (Aroideæ.)

A hothouse plant, growing two feet high; with variegated foliage and white flowers; increased by division of the roots; grown in leaf mould, peat and sand. *Bot. Mag.*, 1861, pl. 5263.

This is another of the pretty-foliaged Caladiums, already introduced into our collections. The foliage is large, deep green, upon which are scattered numerous irregular blotches of a rich blood red or carmine color, the largest of which are ocellated, that is, have little spots of green. It is vigorous in habit, and the flowers are calla-shaped and white. (*Bot. Mag.*, August.)

602. CERINTHE RETORTA *Smith.* CURVE-FLOWERED CERINTHE.
(Boragineæ.) Peloponnesus.

An annual plant, growing eighteen inches high; with blue and yellow flowers; appearing all summer; increased by seeds; grown in good garden soil. *Bot. Mag.*, 1861, pl. 5264.

A new and very pretty annual, with glaucous green leaves spotted like those of the Palmonaria, the superior ones obovate and amplexicaul; it throws up slender curved flower stems, which are terminated with racemes of tubular yellow blossoms tipped with purple, with numerous purplish bracts surrounding the base of each raceme. Though not so showy as some plants, its gracefully curved heads of purple and yellow blossoms, with its glaucous foliage, render it one of the prettiest of the Boragineous plants. It should be planted in tufts. (*Bot. Mag.*, August.)

603. ARNEBIA GRIFFITHII *Boiss.* GRIFFITH'S ARNEBIA. (Boragineæ.) Northwestern India.

A greenhouse(?) plant; growing one foot high; with orange spotted flowers; increased by seeds. *Bot. Mag.*, 1861, pl. 5266.

A remarkable Boragineous plant, "with flowers of a rich orange or tawny yellow, remarkable for five deep purple spots, understood to be the impression of the five fingers of the Prophet Mahomet." It was raised from seeds received at

Kew Gardens, from the Murree Hills. The foliage is narrow, hairy on the edges, and the flowers appear in dense heads, open at the mouth, and not unlike in appearance a verbena blossom. Whether an annual or perennial, or whether adapted to hothouse or open gardens in summer, is not stated. It is a very handsome and striking plant, and if an annual, or even if suited for bedding, it would be one of the greatest acquisitions. Its compact heads of golden blossoms would form a rich variety with other garden flowers. (*Bot. Mag.*, Sept.)

604. *CHYSIS AUREA*, VAR. *LIMMINGHEL*. *LEMMINGHEL'S GOLD-EN-FLOWERED CHYSIS*. (Orchideæ.) Central America.

A stove orchid; growing six inches high; with pink and yellow flowers; grown on branches of trees. *Bot. Mag.*, 1831, pl. 5265.

A very beautiful orchid, with very delicately-tinted pink flowers with a rich golden lip. It is rare and new. (*Bot. Mag.*, August.)

605. *ARISÆMA PRÆCOX* *De Vriese*. *EARLY FLOWERING ARISÆMA*. (Aroidæ.) Japan.

A greenhouse or half-hardy plant; growing about a foot high; with green and purplish black flowers; appearing in spring; increased by division of the root; grown in light rich soil. *Bot. Mag.*, 1861, pl. 5267.

A rather pretty plant, allied to our Indian turnip (*Arum triphyllum*), now called *Arisæma atrorubens*. It has thick somewhat tuberous roots, and leaves with three leaflets. The flowers are green, striated, and the hood is very dark, streaked with white and green bands. It is from Japan. Van Houtte states that it is hardy. It flowered in our collection, but we have not yet had the opportunity to try its hardiness. (*Bot. Mag.*, Sept.)

606. *SPIGELIA SPLENDENS* *Hort*. *BRILLIANT SPIGELIA*. (Loganiaceæ.) ?

A perennial plant; growing a foot high; with scarlet flowers; appearing in spring; increased by division of the root; grown in light rich soil. *Bot. Mag.*, 1831, pl. 5268.

A magnificent plant, with erect stems, woody below, and large leaves four to five inches long, producing towards the apex of the stem several stout elegantly recurved spikes of numerous two-ranked closely set bright scarlet flowers, upwards of one inch long. "Nothing can exceed the deep rich red color of the spike, which makes it a most conspicuous and

desirable addition to our stove plants." Its native country is not known, but it is probably from Mexico or South America. (*Bot. Mag.*, Sept.)

607. HOYA SHEPHERDII *Hook.* MR. SHEPHERD'S HOYA.
(Asclepiadæ.)

A greenhouse or hothouse plant; growing three feet high; with blush colored flowers; appearing in summer; increased by cuttings; grown in light rich soil. *Bot. Mag.*, 1861, pl. 5269.

A new and undescribed species, with very narrow foliage four inches long, and small clusters of delicate blush-colored flowers not unlike *H. bella*. Though not so conspicuous as some others, it forms a pretty addition to a collection. (*Bot. Mag.*, Sept.)

608. BILLBERGIA BIVITTATA *Linden.* RIBBANED BILLBERGIA.
(Bromeliaceæ.) South America.

A hothouse plant; growing a foot high; with dark and pale green striped leaves; increased by cuttings; grown in leaf mould, peat and sand. *Bot. Mag.*, 1861, pl. 5270.

A pretty ornamental-foliaged plant, nearly stemless, with thickly set recurved leaves toothed on the margin, very dark green above, with conspicuous bands of pale buff and dull brown beneath. The flowers are pure white, and are collected into a short dense spike which are almost sunk amongst the leaves. (*Bot. Mag.*, Sept.)

609. CRASPEDIA RICHEA *Cassini.* GLAUCOUS-LEAVED CRASPEDIA. (Compositæ.) Australia.

A hardy annual; growing one foot high; with yellow flowers; appearing in summer; increased by seeds. *Bot. Mag.*, 1861, pl. 5271.

Another addition to our hardy annuals, and apparently a very pretty flower. Its general habit is that of a *Gnaphalium*, the foliage being covered with soft white hairs. The leaves are narrow, and the flower heads, which are large and an inch and a half broad, are globose, deep yellow and quite showy. It is a native of Australia along the Swan River, and was introduced by Mr. Thompson of Ipswich. It flowers in June. (*Bot. Mag.*, Sept.)

610. PETUNIA MADAME FERGUSON.

This is the name of a new and very distinct petunia, raised by Mr. Ferguson of Stowe, England, in 1860: being the smallest of thousands of seedlings it did not flower till Octo-

ber of that year. Last spring a specimen, loaded with upwards of a hundred flowers, was exhibited at the opening fête of the Royal Horticultural Society, and pronounced "a most charming variety. The flowers are of a rich glossy silky white, regularly and distinctly marked with five bands or stripes of beautiful bright purplish crimson. Out of doors it makes a good bed;—and under glass, both in the shape of bushes in pots or trained up pillars, it is both pleasing and effective. (*Florist* for August.)

General Notices.

DAHLIA SHOWS FOR 1861.—The principal dahlia show of the season was held in the Royal Horticultural Society's new Garden, Sept 9th, but owing to the dry weather and the attacks of the thrip the collections of several growers were very seriously damaged. There were, however, some fine blooms, and the principal awards were as follows:—

Best 48 blooms, to J. Keynes, for magnificent blooms of D'Israeli, Cherub, Col. Wyndham, Joy, Warrior, Golden Drop, Lord Palmerston, Mauve, Lilac Queen, Sir Geo. Douglas, Kimberly's Queen, John Keynes, Earl of Shaftsbury, Lord Cardigan, Umpire, Sidney Herbert, Mrs. Church, Mr. Crichtett, Hugh Miller, King of Sweden, Lollypop, Mrs. Dodd, Geo. Elliott, Pioneer, Robt. Bruce, Marquis of Beaumont, Mr. Bushell, Mrs. Trotter, Leopard, Oscar, Rosebud, Lady Douglas Pennant, Seedling Goldfinder, Imperial, Rosa, Pandora, Chairman, Commander, Triomphe de Pecq, Jenny Austin, Lady Franklin, Andrew Dodd's, Goldfinder, Mrs. Bailhache, Juno, Perfection and Mrs. Waters.

Best 24 Fancies, to Mr. Keynes, for Harlequin, Pluto, Splendid, Queen Mab, Souter Johnny, Miss Jones, Starlight, Zebra Conqueror, Baron Aldersen, Garibaldi, Pauline, Imperatrice Eugenie, Lady Paxton, Leopard, Confidence, Mary Lander, and Mark Antony.

This list will convey to amateur dahlia growers the names of the leading show flowers of the year.

CHRYSANTHEMUM SHOW.—A splendid show of chrysanthemums in connection with fruit was held in the Garden of the Royal Horticultural Society, Nov. 6 and 7, when both plants and cut flowers were shown in great profusion and the highest perfection of growth. Only the names of a portion of the varieties exhibited are given, and we copy the following remarks of a correspondent of the *Gardeners' Chronicle* upon the Show:—

The best of them we think were the following, all from Mr. Salter,—Smith's Sparkler, a neat looking variety, falling into an intermediate class, neither large-flowered nor pompone, a comparatively small flower therefore, the color a rich deep brownish red, relieved by the slightly evident yellow-

ish backs of the incurved florets; Salter's Julie Grisi, a pale lilacy rose, lighter colored at the back, with broad, moderately incurved florets, but not yet assuming a form which is quite satisfactory; and Smith's Ion, a very fine medium-sized white, high, and neatly incurved, but not full enough. Beside these Mr. Salter showed Smith's La Belle Blonde, a large white with rosy tint at the circumference, but inferior to Vesta; Clark's Lord of the Isles, a moderate-sized yellow, reddish towards the outsides; Dido, a moderate-sized white with sulphury tips; Smith's Dr. Brock, a coarse dull variety with long incurved florets, pale purplish red outside; Smith's Her Majesty, a blush white; and the following pompones,—Sagitta, blush; Acis, straw color; Sienna, pale coppery orange; Turban, yellow; and Belle Sauvage, dull red; none of them having any striking properties.

• Next as to peculiar older varieties, the most beautiful flower in the whole exhibition was Jardin des Plantes, a large well formed half ranunculus-like but slightly incurved yellow, of the richest and most brilliant golden hue. Another of remarkable beauty was Wonderful, a rich bright purple crimson. Another gem, again, was Vesta, white, with a faint roseate tinge at the circumference, a charmingly delicate flower. And still another was Novelty, a blush white, round as a cricket ball. Remarkably fine samples of them came from Mr. Bird, and they were freely dispersed throughout the collections of cut flowers.

Among the anemone-flowered varieties we noticed one, Louis Bonamay, in which the smaller central florets seem constantly to assume the two-lipped gaping character mentioned some time since as characteristic of the Japan Dragon chrysanthemums.

We notice the names of the following varieties among the cut specimens:—Dupont de L'Ure, Yellow Perfection, Amie Ferriere, Hermione, Pandora, Marshall Duroc, Yellow and White Formosum, Pio Nono, Aregina, Queen of England, Themis, M. Miellez, Trilby, Plutus, Chevalier Damage, Christine, Defiance, Julie Lagravere, (new,) Beaute du Nord, &c., all large-flowered sorts.

THE GREAT FRUIT EXHIBITION of the Royal Horticultural Society, which took place Nov. 6 and 7, is stated to have been extensive and fine. Twelve Uvedale's St. Germain pears, raised in France, weighed 39 lbs.! Beurré Diel, 2 lbs. each; Catillac, 2 $\frac{3}{4}$ lbs. These, with a few other sorts, were shown by Mr. Solomons, the fruit dealer of Covent Garden.

Grapes were in several respects excellent. Of Barbarossa good bunches came from Mr. Drummond, Tunbridge Wells. Of grapes grown in an orchard house, Messrs. Lane & Son showed an interesting collection. They consisted of Black Hamburgh, Esperione, and West's St. Peter's. Of Trebbiana, Mr. Hill had three magnificent bunches which collectively weighed 9 $\frac{1}{4}$ lbs.; there were five rods grafted on Black Hamburgh, which is stated to make a good stock for this, or in fact any grape. Mr. Hill also had an interesting collection, containing, with others, Marchioness of Hastings, Bidwell's Seedling, Muscat Hamburgh, and Lady Downes. Muscats, Hamburghs, and others were exhibited in quantity and great perfection.

Of pears, the best collection came from Mr. Anderson, gardener to the Earl of Stair, near Dalkeith, Scotland, a locality somewhat bleak and not generally favorable for good pear culture. They consisted of Suzette de Bavay, Flemish Beauty, Easter Beurre, and other common sorts, 22 in all, showing the extent of pear culture in Great Britain; a list not so large as the late R. Manning exhibited 20 years ago! Not a dozen of what are called the new sorts appeared in the whole exhibition. The best dish of pears was Glout Morceau, which came from the Queen's Garden, Frogmore.

The largest collection of apples contained 26 varieties, among them Count of Wick, Downton, Ribston Pippin, Nonpareil, &c., the only American variety being the Fameuse. The prize for the heaviest five apples was awarded to the American pippin, which weighed together 5 lbs. 5 ounces. (*Gard. Chron.*)

NEW MODE OF RAISING MUSHROOMS.—At a recent sitting of the French Academy, Nov. 2, M. Chevreuil produced a magnificent bunch of esculent Mushrooms, from the grounds of Dr. Labordette. His method of cultivation is thus described:—He first develops the mushrooms by sowing spores on a pane of glass covered with wet sand. Then he selects the most vigorous individuals from among them, and sows (or plants) their mycelium in a cellar in a damp soil, consisting of gardeners' mould, covered with a layer of sand and gravel 2 inches thick, and another layer of rubbish from demolitions about an inch deep. The bed thus prepared is watered with a solution of two grammes [1 gramme = 15.44 grains Troy] of nitrate of potash per square metre [1.1960 square yard], and in about 6 days the mushrooms grow to an enormous size.—(*Gard. Chron.*)

WASHINGTONIA GIGANTEA.—A specimen plant in the nursery of Mr. John Waterer, Bagshot, Surrey, planted in August, 1856, now measures 15 feet 6 inches in height; the girth 6 inches from the ground is 2 feet 4 inches; circumference of the branches 30 feet; and in every respect it is a most perfect specimen. Another specimen in the grounds of Jas. Hondges, Bagshot, planted in Nov. 1857, is now 11 feet 6 inches high, being an average growth of each year of 2 feet 6 inches. The soil of Bagshot is peaty. (*Gard. Chron.*)

TRAINING CHRYSANTHEMUMS.—A correspondent who gives an account of the Chrysanthemum Show of the Royal Horticultural Society, noticed in another page, thus notices the various forms in which the plants were exhibited:—

There were first and best the roundish or bush-formed specimens. Then there was the flat-headed or table-formed. Some quite flat, some slightly convex, and some more decidedly convex, like dumpy hillocks; the pyramid or extinguisher-formed; the depressed cone-formed; and the standard or tree-like. All these were represented by well-managed and well-bloomed specimens. It was well for once to see the various modes of manipulating the plants brought into juxtaposition in order to judge of the effect produced by each, but the comparison once made, the less that is seen of

the majority of them in future the better. The bush-formed plants were undoubtedly far—very far preferable to any of the rest. It was the most natural, being a mere dwarfing and guiding into a gently rounded outline of the proper upright growth of the chrysanthemum. It was the most effective and beautiful, as giving an idea of completeness and freedom from restraint, while at the same time the flowers were really shown off to advantage, and a true test was applied to skill in cultivation. Next to these in effectiveness stood the tree-like plants—at least such of them as were well managed, but we cannot profess any very strong admiration for their mop-pish heads, even at the best, and they are execrable at the worst. As for the rest if societies continue to offer prizes in such form as to admit of the plants being tortured into monuments of misdirected skill, as ugly as they are deficient in taste, we suppose the growers will reproduce the flattened and extinguisher specimens which were so conspicuous by their deformity on the present occasion; but we hope for better things.—(*Gard. Chron.*)

WARDIAN CASE.—Messrs. Maling sent for exhibition a very nicely arranged plant case glazed in the form of a parallelogram measuring about 46 inches by 20 and of proportionate height, and contained only small plants of *Calladium Chántini* and *Belléyme*, a small double white camellia with two blooms; *Dracæna terminális*, *Erica hyemális*, and *Pteris argyrea*—these being the largest and most conspicuous objects. Then there was a myrtle, *Begonia Dregei*, *Adiantum formosum*, and *Davalla dissécta* officiating as evergreens; and *Pteris tricolor*, *Begonia Griffithii* and a dwarfed *Gesnera cinnabarina*, dwarfs, with richly colored foliage. Of flowers, there was one red and three white Chinese primroses, two Persian cyclamens, a small *Cròwea saligna*, and *Epiphyllum truncatum*. All the intervening spaces were filled up with dwarf green lycopods. The caladiums were distributed towards each end. The *Dracæna* was placed about the centre; the myrtle, camellia, and taller begonia, were in one back corner, forming a thicket with some of the cyclamens and primulas peeping out from beneath them; the dwarf colored-leafed plants were placed in front, and the larger *Pteris argyrea* was set as a match to the myrtle, leaving its corner of the case less crowded and shady than the opposite one. The effect of the whole arrangement was pleasing. The plants of the larger growing species were of course small to suit the size of the case. The flowering element in this tasteful group was, it will be seen, very limited, but every flower was telling, except the epiphyllum, which did not appear to us to look happily placed. The case is a new pattern; it is a patented one, provided with a hotwater tank, by the aid of which tender plants are easily kept in a room, even during winter, the heat being maintained by pouring heated water every 12 or 24 hours into a shallow tank.—(*Gard. Chron.*)

MUSCAT ST. LAURENT GRAPE.—How is it that so little is known or written about this grape? Each year it has ripened with me without fire-heat, before or quite as soon as the Sweetwater. I have asked several people to taste it, and every one pronounces it delicious with a decided Muscat flavor, which it certainly has, but no one seems to know it.—(*Cot. Garden.*)

Gossip of the Month.

THE HORTICULTURIST has again changed hands, our old friend Mr. Mead having associated with him Mr. Geo. E. Woodward, and become both proprietors and editors. Mr. Woodward is known as a contributor to the pages of the Horticulturist on the subject of Landscape Gardening, and his editorial aid will give additional value to the work. We congratulate Mr. Mead on his success in the management of his journal. It will be, as heretofore, published by Mr. Saxton.

ENCOURAGEMENT TO AMERICAN NURSERYMEN.—We thought the time had come when our own nurserymen could supply our planters with all kinds of trees and shrubs, both better and cheaper than they could be imported, except quite new sorts. A writer in one of our agricultural journals, however, in writing about hardy Evergreens, says, "it is far cheaper to import than to purchase here." We certainly are not surprised that a journal offering such advice should not have the cordial support of cultivators, containing as the same issue does its farewell address.

FRUIT FROM PISTILLATE STRAWBERRIES.—I see that Mr. F. Gloede states that he has produced fruit from American pistillates, when no staminate or hermaphrodites had any connection. Query? Has he produced fruit from the Hovey alone?—W. R. PRINCE, *Flushing, L. I.*

NEW WHITE STRAWBERRIES.—I have now in my private collection four most remarkable white large varieties of strawberries, seedlings of the Wilson, and a vast number of two year old seedlings now testing.—*Yours,* W. R. PRINCE, *Flushing, L. I., Nov. 15th, 1861.*

PAMPHLETS, CATALOGUES, &c., RECEIVED.—Catalogue of the officers and students of the State Agricultural College, Lansing, Michigan, 1861.

Clark's System of Concrete Architecture, Hollow Concrete Walls—the most important invention now before the public. Elizur E. Clarke, New Haven, Conn.

An Address delivered before the Owego County Agricultural Society, at Mexico, Sept. 11, and before the Franklin County Agricultural Society, at Malone, Sept. 13. By Luther H. Tucker.

Horticultural Operations

FOR DECEMBER.

FRUIT DEPARTMENT.

GRAPE VINES in the forcing-house will now be in bloom, and will require careful treatment. Renew the covering on the border, or increase it as the weather becomes colder. A covering of boards to keep off cold

rains is very beneficial. Maintain a good temperature on cloudy days, but avoid too great a night heat, 55° to 60° being ample; air freely in good weather. Vines in graperies and greenhouses should now be pruned, cleansed, and washed in order to destroy insects. Whale-oil soap, or a composition of sulphur, clay, lime, and cowdung will answer; with either of these completely cover the shoots. Hardy vines should be laid down and covered with three or four inches of earth.

STRAWBERRY BEDS should be covered with strawy manure, leaves, cornstalks, seaweed, or even pine boughs, whichever may be the most easily procured.

RASPBERRY PLANTS should be laid down and covered with four to six inches of earth.

FRUIT TREES in pots should be removed to a warm shed or dry cellar, where the soil will not be frozen.

CURRANTS AND GOOSEBERRIES may be pruned now.

ORCHARD HOUSES should be covered with matting, old hay, straw or seaweed, to keep out severe cold. Protect the pots or boxes with a good thick covering of leaves.

TRANSPLANTING TREES may be continued when the weather will admit.

PROTECT FRUIT TREES with a barrowful of manure, spread in a circle around the stem.

PREPARE GROUND for spring planting as long as the weather will admit.

FLOWER DEPARTMENT.

At this season of the year, when all out-door work is about completed, attention should be given to the greenhouse and conservatory. By a little care they may be made far more interesting than they usually are. Tie up all the plants; wash the pots; top dress the surface; pick off dead leaves, and arrange neatly upon the stages, bringing the best specimens forward, or those that are in bloom. Be careful in watering; maintain a cool temperature or the plants will be drawn up weakly. Too much heat in December is often the ruin of a whole collection. Climbers on the roof, back wall, or on pillars, should be pruned, if in season, and neatly tied up. Stow away soil for winter use, if not already done.

PELARGONIUMS will now require attention. Specimens for flowering in May should be potted immediately. Tie out the shoots carefully, drawing them down so as to cover the pot when well grown; pinch off strong-growing shoots, and arrange on the stage, giving plenty of room to each plant; keep cool, and as near the glass as possible; water sparingly till well rooted. Young stock should also be potted, and have the same attention.

AZALEAS will now be quite at rest, and, unless desirable to force early into flower, should be kept in the coldest part of the house, where they should only receive water enough to keep them evenly moist; look over occasionally and shake off the dry leaves. Improve every leisure opportunity to tie the plants into neat shape, which they will retain after one season's growth.

CAMELIAS will begin to bloom freely; water more liberally as the season advances and the flowers expand. Stake up all crooked plants, and such as are very straggling may be pruned in short; they will break freely in March and make fine plants.

CINERARIAS should be repotted, and forward specimens have a shift into their flowering pots. Fumigate if the green fly appears.

CALCEOLARIES may be potted, and older stock shifted. Keep on a cool shelf near the glass.

CYCLAMENS should have a cool dry place, and be rather sparingly watered at present. Sow seed now for a young stock.

BEGONIAS, of the ornamental-leaved kinds, should be kept nearly dry, and in the warmest part of the house.

HEATHS will require attention; keep them in a cool place, and do not over water them.

CHRYSANTHEMUMS, now about out of bloom, should be removed to a frame, protecting them from frost with a covering of leaves.

VERBENAS, **PETUNIAS**, and other bedding plants, struck from cuttings in September, should now be potted, placing three or four in each pot, unless plenty of room.

JAPAN LILIES, for the conservatory, should be potted, covering three inches deep, and kept cool and rather dry till the shoots appear above the soil. Sow seeds now.

ROSES potted in September or October should now be pruned and brought into the house.

MONTHLY CARNATIONS making a vigorous growth may now be repotted.

FUCHSIAS, intended for large specimens for early flowering, should be shifted, and have a favorable place to push on their growth.

NEAPOLITAN VIOLETS, potted and kept in the frame, may now be brought into the house.

CACTUSES should be very sparingly watered.

CALADIUMS should be kept perfectly dry, and in the warmest part of the house.

PREPARE SOIL, and store a sufficient quantity for spring use.

FLOWER GARDEN AND SHRUBBERY.

The out-door labors have nearly ceased for the year; what remains to be done is mainly in giving protection to various plants, manuring, and preparing ground for spring.

HYACINTH AND TULIP BEDS should be covered with three or four inches of strawy manure or leaves.

HERBACEOUS PLANTS, of all kinds, should have a light covering of well-rotted manure.

COLD FRAMES should be well banked up with earth, and protected from severe frost; open occasionally in very fine weather, to dry up any damp.

JAPAN LILIES should be covered with manure or leaves.

PERPETUAL ROSES may be laid down and covered with earth; the ground may also be well manured.



